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MEETING INDIANA'S ENVIRONMENTAL PROTECTION NEEDS ORGANIZATIONAL AND STAFFING REQUIREMENTS

Abt Associates, Incorporated

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MEETING INDIANA'S ENVIRONMENTAL PROTECTION NEEDS: ORGANIZATIONAL AND STAFFING REQUIREMENTS

by

Abt Associates Inc.
Cambridge, Massachusetts 02138
Ralph T. Jones - Project Director

for

Region V
ENVIRONMENTAL PROTECTION AGENCY

Contract #68-01-0723

EPA Review Notice

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UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
1 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

November 22, 1972

Honorable Edgar D. Whitcomb
Governor of the State of Indiana
State Capitol
Indianapolis, Indiana 46206

Dear Governor Whitcomb:

As a result of your concern with the adequacy of Indiana's capability to meet its environmental protection obligations to its citizenry, your Steering Committee has reviewed the attached report, "Meeting Indiana's Environmental Protection Needs: Organizational and Staffing Requirements. The study was performed by Abt Associates, Inc. under the guidance and coordinated advice of the Steering Committee which you had appointed - in order to assure the successful and timely completion of this vitally needed study.

Members of my staff and I along with national EPA staff have reviewed the conclusions and recommendations which have evolved from the study. We agree with Abt generally, and concur with regard to the recommendations relative to staffing, subject to the conditions which are noted in the report.

I urge you to give the report and its resultant recommendations your most sincere attention, and endorsement. I believe that together we have succeeded in obtaining a credible appraisal of Indiana's environmental protection needs.

I hope that your interest and concerns for meaningful response by government, industry, and the public to the State's environmental pollution problems will continue in 1973 and until our mutual goals are realized.

Sincerely,

Francis T. Mayo

Francis T. Mayo,
Regional Administrator

ACKNOWLEDGEMENTS

We would like to thank the staff from the U. S. Environmental Protection Agency who provided many hours of advice and assistance to this project. The study was supported by the Region V Office, the Manpower Development Staff of the Office of Water Programs, and the Control Agency Procedures Branch of the Office of Air Programs. James A. Marth, Director of the Office of State Program, Region V, was Project Officer for the study.

We also would like to express our sincere thanks to the administrators and staff of the Indiana State Board of Health and Department of Natural Resources who participated in this study. Their many hours of cooperation and assistance -- particularly their candor in answering our questions -- were essential in the production of this Final Report which we feel is responsive to the environmental protection needs of Indiana.

Special thanks are due the Indiana Steering Committee which provided advice and direction for the study through a series of regular meetings. The members of this Committee were:

Perry E. Miller, Assistant Commissioner for Environmental Health, Chairman

Andrew C. Offutt, M. D., State Health Commissioner

William J. Andrews, Deputy Director, Department of Natural Resources

W. Calvert Brand, State Budget Director

Senator Lawrence M. Borst

Senator Frank L. O'Bannon

Representative Thomas W. Hall

Representative Donald C. Pratt

William Lloyd, Administrative Assistant to the Governor

Roland Mross, Special Assistant to the Governor

The project was conducted by Abt Associates Inc. under the direction of Ralph T. Jones, assisted by Maria Eigerman. Technical direction and review were provided by Robert H. Rea and Martin S. Gordon. Other staff included: Holly J. Kinley, Frederick R. Levy, Ulrich Ernst, and Marian T. Henneman. Consultants to the project included: Peter Silbermann of Anderson-Nichols and Company, Inc.; Edward I. Selig of the Harvard Law School; and Paul Morgenstern of Walden Research Corporation. Mr. Selig was principally responsible for Appendix C, the evaluation of the adequacy of Indiana's legislative authority for environmental protection.

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CHAPTER 1.0

EXECUTIVE SUMMARY

1.1 Background of the Study

In January, 1972, Governor Edgar Whitcomb of Indiana and Francis Mayo, Regional Administrator for Region V of the U.S. Environmental Protection Agency, agreed that a study of Indiana'a environmental protection programs should be undertaken. The objectives of the study were:

- determine the manpower staffing requirements for the State of Indiana's environmental protection functions
- determine the most efficient and effective organizational structure for the state's environmental protection programs
- review and comment on the adequacy of Indiana's current legislative authority for comprehensive environmental protection
- develop a plan for the implementation of recommendations resulting from the study.

The study was jointly funded by the Region V Office of EPA; the Manpower Development Staff of the Office of Water Programs, EPA; and the Control Agency Procedures Branch of the Office of Air Programs, EPA.

Governor Whitcomb also announced the formation of a bipartisan Steering Committee composed of state legislators and representatives from state agencies which would be instrumental in implementing the results of the study. The Steering Committee was to provide advice and direction during the course of the study.

On June 16, 1972, a contract to conduct the study was awarded to Abt Associates Inc. of Cambridge, Massachusetts. As the contractor began work, three important features of the study became evident:

- There were strict time constraints on the period of performance of the study. In order that it be completed in time for consideration by members of the Indiana Legislature before the 1973 legislative session, the study was to be completed in sixteen weeks.
- Because of these time constraints, it was necessary to confine the scope of the study to water pollution control, air pollution control, solid waste management, and the protection of public water supplies.

- Although the study would be of value to other states in the examination of their own capabilities to meet environmental protection needs, the focus of the study was on the specific needs of the State of Indiana. This was reflected in the approach and methodology of the contractor, both of which were designed to produce recommendations which would be most relevant to Indiana.

1.2 Methodology

In meeting the objectives of the study, the contractor utilized the following approach. First, there was a thorough review of relevant state and federal statutes and administrative regulations. In addition to providing the basis for a review of the adequacy of Indiana's legislative authority, this task also provided a basic understanding of the nature and scope of Indiana's environmental programs. Second, the contractor developed and implemented a methodology for determining the manpower needs of Indiana; this methodology consisted of a task review of the functions involved in Indiana's environmental protection programs. Data were collected from interviews with employees currently responsible for those functions in Indiana, and these data were reviewed by Indiana supervisory employees and technical staff in the Region V Office of the EPA. Third, the contractor conducted extensive interviews with administrative officials, legislators, and client and interest groups in order to gather data for the analysis of the organizational structure of Indiana's environmental protection programs.

1.3 Summary of Findings and Recommendations

1.3.1 Manpower

Findings:

1. We found that current staffing levels were inadequate to perform the work required by Indiana's environmental protection statutes and administrative regulations. The most significant manpower needs derived from the passage of the Environmental Management Act which provided for a permit program for the operation of pollution control facilities. The activities involved in reviewing applications for permits, issuing permits, inspecting control facilities and reviewing operations reports to assure that these facilities are in conformity with the permit requirements, will require substantial increases in manpower.

2. We found that certain staff functions -- notably planning and evaluation, provision of legal services to program staff, technical information systems, public information, and manpower planning and development -- were being performed inadequately because of staff shortages. In a related finding, we found a serious shortage of various types of professionals who

are needed for effective implementation of environmental programs, particularly lawyers and planners.

Recommendations:

1. Increase staff responsible for water pollution control, air pollution control, solid waste management, protection of public water supplies, and related staff services, from 93 to 289.

2. In order to attract capable and qualified personnel, implement the proposed salary and grade recommendations proposed by the Board of Health.

Implementation of these recommendations will bring the estimated annual cost of these environmental protection programs to $4.8 million. Of this total, approximately $1.9 million is attributable to the costs of operation of the new permit system for the construction and operation of pollution control facilities; the Environmental Management Act provides that these costs can be covered by permit fees. Also, the state can expect more than $1.3 million in federal assistance in FY 1973.

Note that the salary levels used in estimating these costs were levels which have been proposed by the State Board of Health, but not yet adopted by the State Personnel Division or the Legislature.

Note also that the cost estimates include overhead and travel, but that overhead rates were calculated on the basis of overhead rates from previous years. Such rates may not be sufficient to cover the costs (in terms of equipment or building space) of significantly expanded programs. Indeed, the State Board of Health has requested, for 1973, the construction of an additional 46,000 square feet of space to house anticipated personnel increases. The total capital cost for the construction of this space is $1,845,000, and estimated annual operating expenses will amount to $51,122. Increases in the environmental protection area will account for approximately one-third of this space.

1.3.2 Organizational Structure

Findings

1. Under the current structure, there are three policy-making boards (the Stream Pollution Control Board, Air Pollution Control Board, and the Environmental Management Board). In carrying out their powers and duties, these boards rely on personnel and services of the State Board of Health, particularly the Bureau of Engineering. The Bureau of Engineering reports to an Assistant Commissioner for Environmental Health who also has responsibility for the Bureau of Food and Drugs.

2. Environmental protection is the fastest-growing function in the State Board of Health. Its concerns and operations have become increasingly differentiated from the traditional public health operations of the Board of Health.

3. The expected increase in environmental protection staff will create serious management problems for the Assistant Commissioner of Environmental Health if he continues to be responsible for both environmental programs and also the Bureau of Food and Drugs, one of the largest Bureaus in the Board of Health.

4. The current structure of the Bureau of Engineering is around program Divisions. There is no provision for staff organizations. This inhibits the development of certain functions which are not part of the routine operations of these program Divisions, or which cut across Divisions. These functions include: planning and evaluation, the provision of legal services to program staff, technical information systems, standards development, public information, and manpower planning and development.

5. There are certain related environmental functions located in the Department of Natural Resources. These support, but do not overlap, the environmental functions of the Board of Health. Cooperation between the two agencies is satisfactory.

6. There is some ambiguity in the Environmental Management Act regarding the division of powers and duties between the three Boards responsible for environmental protection policy. This ambiguity is a serious potential problem.

7. Local health and pollution control agencies play an important role in protecting the state's environment. The Board of Health currently cooperates with these agencies, but there has been little systematic division of responsibilities between the state and local governments.

Short-Range Recommendations:

1. The Assistant Commissioner for Environmental Health should be retitled Assistant Commissioner for Environmental Protection.

2. The radiological health, industrial hygiene and food and drug programs should be removed from his jurisdiction.

3. The new Assistant Commissioner should have the following organizational units reporting to him:

- three Bureaus, for Air Pollution Control, Water Pollution Control and Water Supply, and Sanitary Engineering.

- an Office of Special Services to perform required staff functions.

We recognize that there are potential difficulties inherent in the combination of water pollution control and water supply functions. We believe that these difficulties can be overcome, but recommend further study of this question during implementation of these recommendations.

Long-Range Recommendations:

1. A separate environmental protection organization should be established outside the Board of Health.

2. The powers and duties of the Stream Pollution Control Board and Air Pollution Control Board should be transferred to the Environmental Management Board. The EMB should be empowered to hire its own staff, and purchase supplies and services, apart from the budget of the Board of Health. When these changes are made, the EMB will constitute the separate environmental protection organization recommended above. It will have a Board and Commissioner and be similar in form to the current Board of Health.

3. An environmental protection regional field office should be established in northwest Indiana. Consideration should be given to the possible creation of a larger regional field office structure.

1.3.3. Implementation

Short-Range Recommendations:

1. A Special Committee on Manpower Staffing should be created. The most pressing concern in the short-range is the implementation of the recommended manpower increases. These involve a tripling of the number of environmental protection staff, and therefore must be carefully planned and executed.

2. The Director of the proposed Office of Special Services should be hired immediately, and should be designated as Secretary of the Special Committee.

3. Operating procedures, establishing reporting requirements and lines of communication, should be developed for the new organizational structure.

Long-Range Recommendations:

1. Legislation should be introduced to amend the Environmental Management Act, transferring to the Environmental Management Board all powers and duties vested in the Stream Pollution Control Board and Air Pollution Control Board, and authorizing the EMB to

hire staff, purchase supplies and services separate from the Board of Health appropriations.

2. A committee should be appointed by the Governor to plan and supervise the separation of environmental protection functions from the Board of Health. This committee should also consider the timing of the implementation of all long-range recommendations.

3. After the environmental protection functions have been located in a separate agency, the executive of that agency should appoint a committee to study the questions of regional field offices and further internal reorganization.

1.3.4 Adequacy of Legislation

Findings:

1. We found that there is generally sufficient authority to exercise the following powers necessary for a comprehensive and effective environmental protection program:

- Power to establish and enforce environmental quality standards.
- Power to prescribe and regulate the use of pollution control facilities.
- Power to secure detailed information on sources and effects of pollution.
- Power to enforce regulations against violators, through administrative orders and judicial remedies.
- Power to meet requirements of, and to secure benefits available under, federal law.

2. The following powers are not as fully realized as they should be in existing statutes:

- Power to override failures of local governments to exercise their responsibilities.
- Power to secure joint or regional action for environmental protection.
- Power to coordinate strategies for all media.

Recommendations:

Legislation should be introduced to provide additional authority to the Environmental Management Board to meet these needs.

CHAPTER 2.0

BACKGROUND & METHODOLOGY

2.1 Background of the Study

In December 1971, Francis Mayo, Regional Administrator for Region V of the U.S. Environmental Protection Agency, wrote a letter to Governor Edgar Whitcomb of Indiana, suggesting a meeting. The meeting was to discuss a proposal of Mayo's for a study of Indiana's environmental protection problems and the resources needed to resolve them successfully. In January 1972, that meeting was held in Indianapolis. Subsequently, Governor Whitcomb wrote to Mr. Mayo agreeing to such a study, to be undertaken jointly by the State of Indiana and Region V, EPA, and to be financed by the EPA. Governor Whitcomb also announced the creation of a bi-partisan Steering Committee to provide advice and direction for the study. The Committee would be composed of Indiana legislators and representatives from those agencies which would be instrumental in implementing the results of such a study.

In February 1972, EPA issued a Request for Proposal which detailed the items of work to be performed on such a contract and sought a consultant to undertake the study for EPA and the State of Indiana. In June 1972, after technical review of proposals by a joint EPA-Indiana committee, a contract was negotiated with Abt Associates Inc. of Cambridge, Massachusetts. The contract was funded jointly by EPA, Region V; the Manpower Development Staff, Office of Water Programs, EPA; and the Control Agency Procedures Branch of the Office of Air Programs, EPA. The State Programs Officer of the Region V Office of EPA was assigned responsibility for supervision of the study.

It was in this context that Abt Associates began work on June 16, 1972. The contract had, as its main objectives, four specific tasks:

- determine the manpower staffing requirements for the State of Indiana's environmental protection functions
- determine the most efficient and effective organizational structure for the state's environmental protection programs
- review and comment on the adequacy of Indiana's current legislative authority for comprehensive environmental protection
- develop a plan for implementation of recommendations resulting from the study.

These tasks were to be performed within severe time constraints. The Statement of Work emphasized the importance of recommendations implementable "in the shortest timeframe possible." The Governor of Indiana added his concern that the study be completed by early October so that members of the Legislature could consider the findings and recommendations before the 1973 legislative session. The contract established an October 6 deadline for submission of the draft report, allowing a short 16 weeks for all work up to and including the draft report.

Realizing these time constraints, the Steering Committee, at its second meeting, on August 3, 1972, discussed the scope of the contract. Noting that the contract referred to water pollution, air pollution, solid waste management and water supply, the Committee decided not to make any demands on the contractor for investigations of topics outside this scope of work. Although the contractor was not to be oblivious of such concerns as noise control, non-medical radiation hazards, pesticide regulation and control, and the like, they were excluded from the central focus of the study.

2.2 Methodology

The following sections discuss the methodology used to accomplish the manpower and organizational tasks specified in our contract.

2.2.1 Manpower and Cost Estimates

Manpower Estimates

There are a number of different methods for determining manpower staffing requirements. We limited our consideration to two alternative approaches. The first was to use a predictive model similar to that developed by the Office of Air Programs of the U.S. Environmental Protection Agency. Such a model selects a limited number of basic functions which must be performed by any air pollution control program, and then it assumes that the work-load (needed man-years of effort) in a particular function is dependent upon (is a linear function of) some known "predictor" (e.g., number of manufacturing establishments, population, capital expenditure on new plans, etc.). There are two basic advantages to using such a model:

- The amount of data required is minimal, and usually readily available (e.g., from Census)
- It solves one of the most difficult problems of manpower needs determination -- predicting needs for activities never performed before. This model, by drawing on the experience of several different jurisdictions, can pass that collective experience on to other jurisdictions that are just starting programs.

An alternative method for manpower needs estimation is to do a task review of the functions to be performed. In this method, the basic functions of an environmental protection agency are divided into a limited number of activities which in turn, are sub-divided into tasks. A study is made of the amount of time it takes to perform each task which contributes to the output of the agency. The manpower need for each task (or activity, depending upon the level of detail required), is assumed to be a simple product of the desired level of output and the time required to produce one unit of output. Total manpower need for the agency is the sum of the manpower needs for each task. The strengths of this method are the following:

- It is directly relevant to the needs of the particular jurisdiction for which it is developed. Unlike the EPA-OAP air pollution model, it does not use data from other jurisdictions. The basic data inputs are task reviews from that particular jurisdiction.

- The task reviews, in addition to being sources of data for the model, also provide information about the specific types of staffing needs (e.g., professions, skills, grade levels). Also, by looking at units as small as tasks, one can learn about potential changes in task structure which might result in better utilization of staff resources.

There are two deficiencies in the task review approach. First extensive data collection is required by the task review step of the process. Second, any inaccuracies in task review are passed through as inaccurate manpower estimates.

In spite of these possible problems, we chose the task review approach because we wanted our manpower estimates to be as relevant as possible to the unique problems and needs of the State of Indiana. We also took certain steps to correct for any problems that might result from this approach.

- We were able to obtain the results of the EPA-OAP model for air pollution control programs and use their total estimates as a check on ours.

- We enlisted the professional judgments of staff in the Indiana State Board of Health and the Region V Office of EPA to identify any calculations that appeared to be seriously out of line with their experience. Any estimate so identified was then reevaluated.

Chart 1: Format of Time-Budget Survey Instrument

Activity 1.

Total hrs./mo.

Task 1a____________hrs./mo.
Task 1b____________hrs./mo.
Task 1c____________hrs./mo.
Task 1d____________hrs./mo.
Task 1e____________hrs./mo.

total

Activity 2.

Total hrs./mo.

Task 2a____________hrs./mo.
Task 2b____________hrs./mo.
Task 2c____________hrs./mo.
Task 2d____________hrs./mo.

total

Activity 3.

Total hrs./mo.

Task 3a____________hrs./mo.
Task 3b____________hrs./mo.
Task 3c____________hrs./mo.

Total

Total hours

Application of the methodology involved the following tasks:

1. We interviewed supervisory personnel in the State Board of Health to assist in the development of a comprehensive list of activities and tasks performed by environmental protection personnel in Indiana. We then checked these definitions of activities and tasks with EPA Region V personnel.

2. On the basis of this definition of activities and tasks, we developed a questionnaire for all Board of Health employees who are engaged in activities directly contributing to water pollution control, air pollution control, protection of domestic water supplies, or solid waste management. The purpose of these questionnaires was to obtain a time-budget from the employees, i.e., to learn how much time it took each employee to perform a given activity or task. An example of the basic format for the time-budget appears in Chart 1.

3. We administered these questionnaires. Employees first were asked to start with the total number of hours they worked in the last 4-week period (excluding holidays and vacations). If they worked over-time, they were asked to include those hours in the total so that we could get an accurate picture of actual hours needed for various activities. Second, they were asked to allocate this total number of hours to activities. Third, they were asked to allocate the hours per activity to several different tasks which were necessary in the performance of that activity. The questionnaire was not a rigid document. Space was provided so that employees could add tasks that we had not considered in preparing the questionnaire. In cases where work was extremely seasonal (so that an estimate from the last four working weeks would be unrepresentative of the year's activities), the process was repeated for the other "season" of the year. We also provided separate questionnaires to obtain data on time spent on non-routine tasks and activities, i.e., activities which occurred infrequently and without any particular pattern throughout the year.

4. The data collected with these questionnaires were then analyzed. In order to obtain the number of man-hours necessary for production of a given level of output, the following calculations were made:

   - man-hours per activity were summed across all employees in a given work group
   - measures of output per activity (obtained from the questionnaires and checked against employee work reports) were summed across all employees.
   - hours per unit of output were determined by dividing the total level of output by total hours devoted to each activity.

5. Desired levels of output were determined through interviews with supervisory staff at the State Board of Health. These levels were those which we determined would meet Indiana's environmental protection needs as of June 30, 1973.

6. Total man-years necessary to produce that level of output were determined by using the following formula:

U = unit of output (e.g., one inspection)

N = number of sources (e.g., point sources of air pollution which must be inspected)

F = frequency (e.g., certain point sources must be inspected twice a year; thus, F = 2)

H = hours per unit of output

U x N x F x H = manpower need (in hours)

The total man-hours were converted into man-years by dividing by 1800, the number of hours in an average work year. The method used to arrive at this figure of 1800 was the following: theoretically, a work year should consist of 52 five-day weeks, or 260 days; but this would not account for days not worked because of vacations holidays, and sick leave; in the Indiana State Board of Health, these absences amount to 35 days a year for the average employee. If we subtract these 35 days of absences from the theoretical work year of 260 days, we arrive at an actual work year of 225 days for the average employee. Multiplying this by 8 (the number of hours in a day) yields 1800, the number of hours in an average work year.

The results of these calculations appear in Appendix A. Each of these tables presents data in a format which follows the basic methodology outlined above. For example, in the first line of Table A-2, there are 96 stations for stream monitoring. Each of these stations is visited every two weeks, and samples are collected. It takes 0.93 hours to collect samples from a single station. Thus, the manpower need for this activity is 96 times 26 times .93, and this number divided by 1800 equals 1.29 man-years.

Before continuing this discussion of methodology, we would like to answer a few questions commonly raised about these data and the methodology which produced them.

Question: In an activity like inspections, there is usually a lot of travel time. How did you account for that in your estimates?

Answer: Travel time was one of the tasks included in any activity which necessitated travel. Employees were aware, when completing the questionnaires, that their total hours for a given activity like inspections should include the travel time associated with that activity. Thus, for any activity which required travel, travel time is built into the total hours per unit of output.

Question: What about activities without output levels?

Answer: There are several different types of these. For example, many of the Sections in the Bureau of Engineering performed an activity we called "technical information," i.e., they responded to inquiries from the public, usually engineers or operators of pollution control devices seeking technical advice or information. We could not obtain output measures for this. In lieu of output measures, we used current man-years devoted to this task, and assumed that the volume of inquiries would not change radically in the coming year.

For some other activities, like administration, we used a simple formula, widely accepted by manpower specialists: one administrator for every five employees. For clerical manpower estimates, we used another widely accepted formula: one clerical for every five professionals; one clerical for every three administrators.

Question: What did you do for activities which are going to be performed in the coming year, but which have not yet been performed? How did you get hours per unit of output?

Answer: There were some cases -- stack testing is a good example -- where the activity was so new that we could not apply our methodology. In such cases, we simply interviewed both employees and their supervisors and arrived at a generally-accepted estimate of the hours per unit of output.

Cost and Revenue Estimation

The cost of those activities associated with the implementation of the permit program of the Environmental Management Act may be supported by revenues from fee collection under the permit program; therefore, we derived two categories of activities: those which might be supported by permit program revenues and those which must be supported by general revenues and federal assistance.

The method for computing costs for both groups of activities was the same, and it consisted of the following procedures:

- For each activity, there is an estimate of manpower needed to perform that activity.

- These manpower estimates, however, were aggregate numbers i.e., professional and clerical. Thus, it was necessary to disaggregate these totals into specific employee types, with associated grade levels. The specific job titles and grades for each activity were determined through an analysis of the skill and experience requirements of the activity, and an analysis of the State Division of Personnel's position descriptions for each position. Also, the aggregate manpower estimates (which often included fractions of man-years) were converted into the number of full-time employees necessary to accomplish a given activity by rounding off fractions of man-years.

- The next step involved determining appropriate salary levels for each employee type required to perform environmental protection activities. For this we used the revised salary structure proposed by the Board of Health. Each employee grade level has a salary range (including several step-increases which depend on longevity in grade). Since we needed a single salary number for purposes of calculating costs, we used the mid-point of the salary range as an average figure for each employee type and grade level.
- Finally, we determined total costs by multiplying the number of employees times their salary costs.

2.2.2 Organizational Analysis

Our analysis of the Bureau of Engineering's current organizational structure was designed to answer the following two questions:

- Is the current structure of environmental protection programs in Indiana adequate to carry out the requirements of federal and state law?
- Is that structure capable of meeting the organizational needs of a greatly expanded environmental protection program?

To answer the first question, we had to inquire as to the ability of the organization to lend support to the major activities required of the state's environmental protection program, such activities as surveillance, enforcement, plan review, standards-setting, laboratory analysis, planning, legal services, and the like (the tables in Appendix A list these activities in detail). To answer the second question we analyzed the capability of the present supervisory and administrative structure to monitor the work of an agency which will become approximately three times its present size. This analysis included an examination of the present duties of the chief administrator of the agency, as well as the supervisory systems and procedures which supplement the manager.

To answer these questions, our analysis encompassed the following procedures:

- Examination of present and past organization charts.

- Examination of the present administrative and supervisory functions which are performed in the agency.

- Examination of the required activities of the agency. (This was accomplished during the development of the task analysis questionnaire.)

- Interviews with all of the key actors in Indiana'a environmental protection organizations, as well as with officials in other state offices, in EPA, and with representatives of many of the public groups which are concerned about the quality of environmental protection in Indiana.

While a study of the relevant documents (legislation, organization charts, position descriptions, and the like) formed the basis for the organization study, the major part of this study involved interviewing concerned individuals. During these interviews, we encouraged participation of the agencies involved in the proposed organizational restructuring. Consequently, we interviewed:

- at the State Board of Health
  - Commissioner of Health
  - Assistant Commissioner for Environmental Health
  - Director, Personnel and Training
  - Director, Division of Systems and Computer Services
  - all employees and supervisors in the Bureau of Engineering responsible for water pollution, air pollution, solid waste management, and water supply. Many of these individuals, particularly supervisors, were interviewed more than once.

- in the Department of Natural Resources, the Deputy Director for Water and Mineral Resources, and supervisory personnel from:
  - Water Division
  - Oil and Gas Division
  - Geologic Survey Division
  - State Water Plan Section
  - Soil and Water Conservation Committee
  - Law Enforcement Division
  - Forestry Division

In addition, in order to gain some perspective on organization problems in environmental protection in Indiana, we interviewed the following:

- Special and Administrative Assistants to the Governor

- Representatives of interest groups concerned with environmental protection

- State of Indiana League of Women Voters
- Indiana State Chamber of Commerce
- Izaak Walton League (Porter County Chapter and State President)
- Consulting Engineers of Indiana, Inc.
- Eco-Coalition
- Save the Dunes Council
- Environmental Quality Control, Inc.
- Clean Air Coordinating Committee (Chicago Metropolitan Area and Northern Indiana)
- Indiana Farm Bureau, Inc.
- Lake Michigan Federation
- Indiana State Employees Association, Executive Secretary

- Selected staff from the Region V and Headquarters offices of EPA.

CHAPTER 3.0

STAFFING REQUIREMENTS

One of the most important aspects of this study has been the determination of manpower staffing requirements for certain environmental protection functions performed by the State of Indiana -- namely, water pollution control, air pollution control, protection of public water supplies, and solid waste management. In Chapter 2.0 we described the methodology used to obtain these manpower projections, and we presented a summary of projected staffing needs. This chapter will discuss in more detail the following subjects:

- Section 3.1 analyzes the program requirements of state and federal legislation, administrative regulations, and their implications for staffing needs.
- Section 3.2 presents our detailed manpower staffing projections. For each major activity performed in the areas of water pollution control, air pollution control, protection of public water supplies and solid waste management, we will present the level of output required by legislation and regulations and the level of manpower necessary to achieve that level of output.
- Section 3.3 presents cost estimates for the manpower projections developed in Section 3.2. Also in this section, we present our conclusions regarding possible sources of revenue to support these manpower increases.

3.1 Program Requirements for Environmental Protection in Indiana

Indiana's existing environmental protection programs and the statutes and regulations authorizing these programs, if fully implemented, should meet the state's environmental protection needs. Our study also indicates that these programs, if fully implemented, should meet federal environmental protection standards and administrative guidelines. To the extent that Indiana is not now meeting its needs, the fault generally is not in the law. Rather, the fault is in the state's inability to fully implement existing statutes and regulations; and one of the most important reasons for incomplete implementation is the lack of sufficient manpower to do the job.

3.1.1 New and Developing Programs

The single most important new environmental protection program in Indiana is the comprehensive permit program authorized by Indiana's new Environmental Management Act. This program derives from a provision in the Act which prohibits all persons from constructing, installing, operating or modifying any pollution control facility except with a permit to do so from the appropriate board. While Indiana had required permits for construction prior to the enactment of the Environmental Management Act, the provision for operating permits represents a significant new program. The size of the new program can be estimated by considering the number of operating permits which will likely be required when the Board (or Boards) adopts the permit regulations:

- Approximately 1000 industries discharge wastes into Indiana waterways and operate pollution control facilities.
- An estimated 1000 confined animal feed lots discharge wastes into waterways and will need permits.
- There are approximately 300 municipal sewage treatment plants.
- Over 2500 point sources of air pollution require emission control facilities.
- There are approximately 200 sanitary landfills.

These represent a total of 5000 permits, and for each permit the following activities must be performed:

- A permit application must be received, evaluated and processed. A decision on the permit application must be communicated to the applicant. The applicant's fee must be collected and processed.
- In order to properly evaluate the permit applications, pollution control facilities must be inspected to assure that they qualify for an operating permit.
- Since the permit attaches certain conditions on the operation of a pollution control facility, there must be an inspection system to assure compliance.

Another example of a program which requires substantial staff increases is the mandatory reporting on effluent analysis by industrial commercial and agricultural operations. The Stream Pollution Control Board's regulation SPC 11 requires that all such operations submit monthly reports to the Board. To date, this regulation has not been fully implemented because of shortages in staff. Since the new Environmental

Management Act empowers the EMB to establish any reporting requirements it deems necessary to carry out its own powers or those of the APCB or SPCB, reporting programs like that required by SPC 11 will become increasingly significant.

As a final example, the Division of Air Pollution Control is now developing procedures for its surveillance program. As part of the control strategy developed in its Implementation Plan, the Division outlined an extensive program of scheduled inspections of emitters. Fully implementing such a program and supporting the inspections with sufficient technical and laboratory personnel will require significant increases in staff.

3.1.2 Adequate Performance Levels

If Indiana's statutes and administrative regulations are to be fully implemented, there must be sufficient manpower to fulfill their requirements -- i.e., to meet certain standards of performance that assure the protection of the environment. Thus, when developing our manpower determinations, we were careful to provide adequate staff for meeting these performance levels.

One instance where standards of performance are not being fully met is the protection of public water supplies. Indiana's statutory authority here is not a new or developing program area. Nevertheless, substantial increases in staff are required to conform to existing legislation and assure that performance meets reasonable standards. At the present time, according to Board of Health staff, manpower shortages prevent sufficient attention to applications for permits for the construction or alteration of public water supply facilities.

Clearly, it was impossible within the limits of this study to fully evaluate the adequacy of all activities performed by the State Board of Health. We started with the assumption that the state was performing activities adequately unless we had evidence to the contrary. Thus, most of our manpower determinations are based on quantitative increases in workload, rather than increases in the quality of output. To arrive at these estimates, we used the data obtained through our task review and time budget interviews with SBH employees. These data were also analyzed by supervisory personnel in the Indiana State Board of Health and by technical personnel in the Region V Office of the Environmental Protection Agency. When either of these sources suggested that manpower increases were necessary to improve the quality of output, we re-examined our data and sometimes made the suggested changes. Occasionally, however, recommendations made by the EPA Region V staff diverged sharply from our task review data, and we did not make the suggested changes but rather noted the EPA position in a footnote.

The manpower determinations presented here should be considered as minimum levels. We recommend that where EPA Region officials have suggested increases they be given serious consideration and that further analysis be undertaken to assure that these manpower levels do, indeed, provide adequate levels of service.

3.1.3 Management Requirements

In the final analysis, an agency's performance will be determined not only by its staffing levels for major program activities, but also by the care taken in organizing and managing the work. After examining the organization of existing agencies responsible for environmental protection in Indiana (primarily the Board of Health), Abt Associates has reached several conclusions regarding the organization and management of those employees directly responsible for control of air and water pollution, protection of public water supplies, and solid waste management. These conclusions, developed more fully in Chapter 4.0, contain recommendations for the creation of several new staff functions to provide various special services currently receiving insufficient attention (if performed at all). We feel that staffing these functions will improve the overall efficiency and effectiveness of the agency. Specifically, we are referring to: planning and evaluation, legal services, standards development, technical information services, public affairs, and manpower planning and development.

3.2 Manpower Determinations

In the page that follows, we present our detailed manpower determinations. Table 1 is a summary table, indicating current staffing levels, staffing needs, and the net increase in staff, for each of several functions. The detailed manpower calculations by which these summary data were derived are found in Appendix A. It should be clear, after studying these data, that the largest manpower increases occur in response to the factors discussed in Section 3.1 above.

- The greatest increases (indicated in Table 1 right-hand column) occur in those areas which are chiefly responsible for the new permit program. The industrial waste control function is an excellent example. The total man-year increase for that function is 24.0. Most of this increase represents the manpower necessary to issue operating permits for pollution control facilities in industries and confined feed lots, to inspect these facilities ,and to read and follow-up the reports required from these facilities.
- There are some significant increases in areas which are not immediately initiating new programs (e.g., water supply) but which nevertheless need qualitative improvements in program operations.
- Other substantial increases were made in the "special services", in order to staff functions which are currently being performed at very low levels of effort (if at all).

Table 1

Comparison of Current Staffing Levels and Staffing Needs

Function	Current Staffing Levels			Staffing Needs			In-crease
	Pro-fessional	Clerical	Total	Pro-fessional	Clerical	Total	Total
Administration	1.5	1	2.5	6.0	5.00	11.00	8.5
Water Pollution Control and Water Supply							
• Surveys	13.0	1.0	14.0	19.5	4.5	24.0	10.0
• Sewage Treatment	9.0	3.0	12.0	13.0	3.0	16.0	4.0
• Industrial Waste	9.0	1.0	10.0	28.0	6.0	34.0	24.0
• Water Supply	5.5	0.5	6.0	20.0	4.5	24.5	18.5
• Laboratory	12.0	2.0	14.0	31.0	6.00	37.0	23.0
Air Pollution Control							
• Surveillance	9.0	2.0	11.0	25.0	5.5	30.5	19.5
• Technical/Permits	8.0	1.0	9.0	9.5	2.0	11.5	2.5
• Laboratory	5.0	1.0	6.0	14.5	3.0	17.5	11.5
• Local Assistance	0.0	0.0	0.0	7.0	1.5	8.5	8.5
Solid Waste Management	4.0	0.5	4.5	13.5	3.0	16.5	12.0
Special Services							
• Standards Development and Technical Information Systems	0.0	0.0	0.0	17.0	3.5	20.5	20.5
• Legal Services	0.0	0.0	0.0	11.0	2.5	13.5	13.5
• Planning and Evaluation	4.0	0.5	4.5	15.5	3.5	19.0	14.5
• Public Affairs	0.0	0.0	0.0	2.0	.5	2.5	2.5
• Manpower Planning and Development	0.0	0.0	0.0	2.0	.5	2.5	2.5
Total	80.0	13.5	93.5	234.5	54.5	289.0	195.5

3.3 Personnel Policy

Table 1 indicates the substantial increases in manpower required in the near future to meet Indiana's environmental protection needs. It is important to point out here our general findings that the State of Indiana will have difficulty finding qualified personnel for all these positions given current pay scales and personnel policies of the State. At the present time, the Bureau of Engineering is operating with a staff that is below authorized levels. Public Health Sanitarians are filling slots authorized for Engineers because qualified engineers cannot be found. This is an indication of the severity of the problem facing the Board of Health as it prepares to meet new staffing requirements. The most important problems in this regard are the following:

- Pay scales are reported to be competitive at some lower grades, but seriously non-competitive in all upper grades. This squares with a fundamental fact of life at the State Board of Health: some employees use it as a training school to learn about environmental protection and gain valuable experience; they then leave for other, better paying jobs in the private sector or federal government. Thus, the state makes substantial investments in human capital, but loses these investments because of inadequate pay-scales.
- Low salary levels in the upper grades also mean that the state has difficulty recruiting and keeping supervisory and managerial personnel. This is a serious problem, particularly for an agency facing rapid expansion which requires increases in managers and supervisors. The Board of Health's recently proposed salary increases and creation of some new grade levels may help to alleviate these problems, if the proposals are implemented.
- Present personnel policies in the Bureau of Engineering favor engineers for all administrative positions. This curtails career opportunities in environmental protection for biologists, chemists, public health sanitarians, planners, etc.

In addition to creating difficulties for the Board of Health as it faces the prospects of a rapid expansion of staff, these personnel policies also produce serious employee morale problems. These problems are particularly acute among non-engineering employees, who foresee no possibility of advancement within the agency.

On September 11, 1972, the State Health Commissioner transmitted "State Salary Plan Revision Recommendations" to the Director of the State Personnel Division. These proposed changes would help to alleviate some of the problems discussed above, and we recommend that they be adopted. If adopted, these changes would have the following impacts:

- Salaries would be increased to make them more competitive with business, industry, and other government agencies.

- New salary levels would be established for supervisory employees. With particular reference to problems in the area of environmental protection, these new levels will help to close the salary gap that now exists between the Assistant Commissioner for Environmental Health and supervisory employees in the Bureau of Engineering.

Further changes, however, could be made.

- The state should build on the task review presented in this report and focus on the question of functional job requirements for all environmental protection activities. Such a study might lead to a redefinition of prerequisites for all environmental protection positions.

- Further consideration should be given to the problem of career opportunities for non-engineering employees in the area of environmental protection.

- The state should, as a matter of general personnel policy, make sufficient provision for the employment of lawyers in agencies other than the Office of the Attorney General. Our study indicates the need for increased legal services to support environmental protection activities. This matter however, involves broader questions of personnel policy, and it should receive further study.

The Director of the State Board of Health's office of Personnel and Training has given thought to many of these problems, and his advice and recommendations on these questions should be considered when decisions are made.

3.4 Costs and Revenues

As shown in the previous section, substantial increases in manpower will be required to implement the state of Indiana's environmental protection programs. The number of employees needed is over three times the current level, and we can anticipate comparable increases in support staff, overhead and travel expenditures. To support the large costs of these programs, the state of Indiana should consider revenue sources other than general revenues, e.g. those available through the permit program and Federal assistance.

3.4.1 The Permit Program

The Environmental Management Act which created the Environmental Management Board also authorizes the state to issue permits for the construction, installation, or modification of facilities, equipment or devices for any public water supply or garbage disposal and refuse disposal; and for the issuance of permits for the operation of facilities, equipment or devices to control garbage disposal and refuse disposal wherever the operation of any facilities, equipment or devices involve the emission of any contaminant into the atmosphere or into the water or upon land."[*] Chapter 16, Section 6 of this same Act authorizes the state to collect fees for these permits and stipulates that the fees established shall take into account the "cost of issuance of the permit or license, the performance of all services in connection with the supervision, review and other necessary activities related to the area and the surveillance of the activity or property covered by the license or permit." It further requires that no fees will exceed the cost of these services. The additional work required by the permit program and the opportunity afforded by its potential revenues thus became an important factor in the cost and revenue analysis.

3.4.2 Method of Cost and Revenue Estimation

In estimating the costs and potential revenues of an expanded program of environmental protection, we paid particular attention to these activities associated with the implementation of the permit program of the Environmental Management Act. The costs of these activities, according to the Act, are costs which may be supported by revenues from fee collection under the permit program. Thus, we derived two categories of activites: those which might be supported by permit program revenues and those which must be supported by general revenues and federal assistance. A summary of these costs appears in Table 2. For complete documentation supporting these summary data, see Appendix B.

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[*] Environmental Management Board, Regulation EMB 1, Permit Regulation (Draft), p. 1.

Table 2

Costs of Recommended Increases In Environmental Protection Manpower For The State of Indiana

Function	Total Costs 1/	Permit Program Costs
Administration	$ 188,266	-
Water Pollution Control and Water Supply		
● Surveys	261,009	-
● Sewage Treatment	192,829	118,827
● Industrial Waste	414,840	345,878
● Water Supply	256,666	127,101
● Laboratory	393,939	233,643
Air Pollution Control		
● Surveillance	365,361	232,368
● Technical/Permits	159,861	126,013
● Laboratory	224,601	137,936
● Local Assistance	170,999	-
Solid Waste Management	203,964	72,309
Special Services	734,854	-
Total Labor Costs	3,567,189	1,394,075
Overhead	1,105,829	432,163
Travel	142,688	55,763
Total	$4,815,706	$1,882,001

1/ "Total labor costs" include direct salaries, vacation, holidays, and sick leave, but exclude other fringe benefits, overhead and travel. Overhead is estimated at 31.9% of total labor. Travel is estimated at 4.4% of total labor.

Please note that overhead rates were calculated on the basis of overhead estimates from previous years. These rates may not be sufficient to cover the costs (in terms of field and laboratory equipment, for example) of significantly expanded programs.

We believe that the estimated annual costs of expanded environmental protection programs, presented in Table 2, are one indicator of what the actual costs will be. As such, they are useful data. On the other hand, in order that they not be misinterpreted, we offer two important caveats about the methods used to derive them:

1. The salary levels used in estimating labor costs are the levels which have been proposed by the State Board of Health, but which have not yet been adopted by the State Personnel Division. We believe these proposed salary levels should be adopted, as we recommend in Section 3.3.

2. The estimates of overhead and travel were calculated. as fixed percentages of total labor costs. These fixed percentages, however, were derived on the basis of overhead and travel rates from previous years. Such rates may not be sufficient to cover the costs (in terms of travel supplies, laboratory equipment, building space, etc.) of significantly expanded programs.

   Indeed, the State Board of Health has requested, for 1973, the construction of an additional 46,000 square feet of space to house anticipated personnel increases. The total capital cost for the construction of this space is $1,845,000, and the estimated annual operating expenditures will amount to $51,122. According to the Assistant Commissioner for Administration, increases in the environmental protection area will account for approximately one-third of this space.

3.4.3 Summary of Costs and Revenues

As shown in Table 2, the estimated cost of the expanded environmental protection programs is $3,567,189. The largest percentage of this amount (42%) is for water programs--water pollution control, public water supplies, and the laboratory functions which serve both. One-quarter is estimated for the operation of air pollution control programs, and an even smaller fraction will be used by the other environmental programs. The remainder (20%) has been estimated for special services, including planning and evaluation, legal services, standards development, technical information services, public affairs, and manpower planning and development.

Our projections indicate that the greatly expanded environmental protection programs can be developed without extraordinary increases in appropriations from general revenues. The logic behind this conclusion is the following:

- Total program cost is $4,815,706.

- A significant portion of this total is attributable to the operating costs of the new permit system, which, as Table 2 indicates, amount to $1,882,001.
- Projected federal assistance (in the form of water and air pollution program grants) amounts to $1,332,176 for FY 1973. (This amount does not include other grant monies for which Indiana is eligible, e.g., solid waste management demonstration grants. The state has not applied for such grants in the past year, but it may do so in the future.)
- If permit program costs are covered by permit fees and if the projections for federal assistance are accurate, the total program costs coming from general revenues amount to $1,601,529. Thus, staffing levels can be tripled with a modest increase in appropriations from general revenues.

Admittedly, this will not be feasible in the short run. There will be significant start-up costs, and the permit program revenues will lag behind costs incurred. Thus, in the short run, these increased costs must be borne by general revenues. It seems reasonable to assume, however, that the legislature could establish some form of pay-back procedures to correct for this lag; even though the initial outlay from general revenues would be high, it could be reimbursed when permit revenues have been generated.

Since these estimates of permit program revenues are quite substantial, it is worthwhile to examine briefly the impact of these revenues on pollution sources which will be required to pay fees. There are approximately 5,000 pollution sources which could be required to obtain permits and to pay a permit fee. Two issues should be considered here:

- These pollution sources clearly differ in the capacity to pay permit fees; e.g., a large industry is better able to pay than a small confined feed lot operation.
- Municipalities are pollution sources. While there is no legal reason why they could not be required to pay fees, it may be desirable on other grounds to exempt them from fees.

As the exact fee structure is yet to be determined, we cannot say with assurance that these permit revenues will be generated; but it is clearly within the state's legal authority to collect fees to cover costs.

Our only other source of information on probable results of the permit fee system is the experience of other states. The State of Michigan recently enacted a surveillance fee system for water pollution control, which applies only to industrial dischargers and covers the costs of surveillance. The fee schedule, established by the legislature, ranges from $50 to $8,000 per industry. In 1971-72, 1137 industrial dischargers were billed $729,292 in fees. Of these, only four have not paid. This high rate of return on billings is an encouraging sign for the development of a permit fee system in Indiana.

CHAPTER 4.0

ORGANIZATIONAL STRUCTURE

In the previous chapter we presented Indiana's environmental protection manpower staffing needs for meeting the requirements of its laws and regulations. These increases in manpower, however, will not be fully productive in contributing to environmental protection unless they are effectively organized. In this chapter we present our findings and recommendations with regard to questions of organizational structure. Our analysis of the problem has identified these questions as most important:

1. How will a substantially enlarged environmental protection program be organized?
2. Should there be a single state agency for environmental protection?
3. Should the three separate Boards for environmental protection policy be consolidated into one, the Environmental Management Board?
4. How should field work be organized? Should there be field offices for environmental protection?

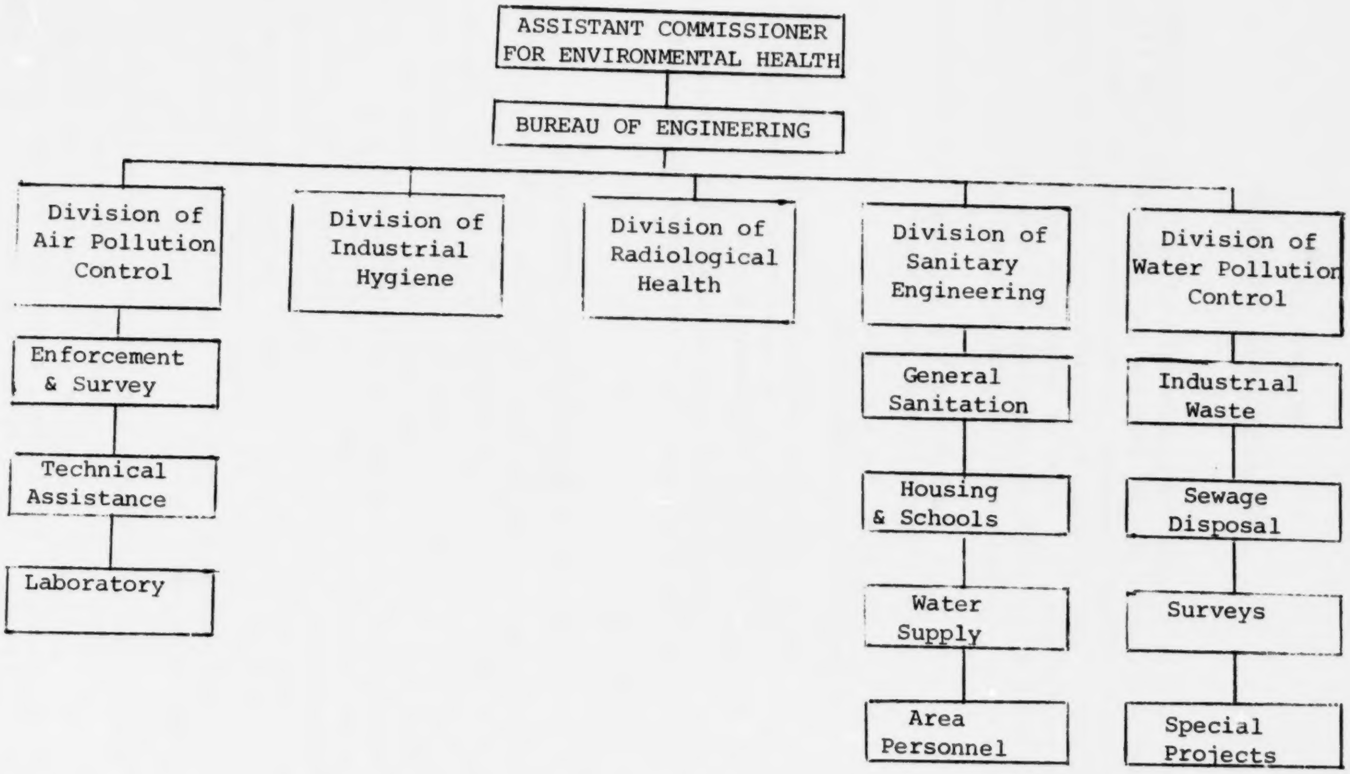
4.1 Findings

4.1.1 Organization of Environmental Activities

There are two basic ways to organize units performing environmental protection activities: by programs and by functions. By "program", we refer to work units which perform all environmental protection activities for a particular pollution source or medium (e.g., air pollution, water pollution, and the like). By "function", we refer to work units which group related activities across all programs (e.g., enforcement, surveillance, technical services, and the like). The current structure of the agency chiefly responsible for environmental protection activities in Indiana, the Bureau of Engineering in the Board of Health, is by program, as indicated on the organization chart on the following page. As such, it has the strengths and weaknesses associated with a program-oriented structure. Specifically, we found the following conditions to exist.

1. The traditional activities which comprise the core of each of the existing programs (e.g., review of plans for construction of pollution control facilities, inspection of the operations of these facilities, monitoring of streams

Chart 2: Current Structure, Bureau of Engineering


ASSISTANT COMMISSIONER FOR ENVIRONMENTAL HEALTH
BUREAU OF ENGINEERING
Division of Air Pollution Control
Enforcement & Survey
Technical Assistance
Laboratory
Division of Industrial Hygiene
Division of Radiological Health
Division of Sanitary Engineering
General Sanitation
Housing & Schools
Water Supply
Area Personnel
Division of Water Pollution Control
Industrial Waste
Sewage Disposal
Surveys
Special Projects

and air quality, etc.) are thoroughly routinized and are performed adequately given the constraints of manpower shortages.

2. On the other hand, many of the newer activities associated with rapidly developing pollution control laws tend to be performed less routinely, if at all. Planning, standards development, inter-governmental relations, manpower planning and development --important functions for program development and implementation — are given insufficient emphasis.

3. The present structure of the Bureau of Engineering is not designed to effectively absorb both new staff and new functions. This is particularly true with regard to personnel required to perform certain staff functions such as legal services, manpower planning, and public information. If these functions are to be expanded as we recommend, the present structure does not provide a location for them which will give them the necessary organizational recognition.

4.1.2 The Question of a Single Agency

There are three parts to this question.

- If environmental protection remains within the Board of Health, should all these activities be consolidated into a single-purpose, high-level, organizational unit directed by an Assistant Commissioner responsible only for environmental protection.
- Should a separate agency for environmental protection be established by removing environmental activities from the Board of Health?
- If such a separate agency were to be created, should it include the environmental functions of the Department of Natural Resources?

With regard to the first question, our study indicates that the executive responsible for environmental protection, the Assistant Commissioner for Environmental Health, also is responsible for other functions not directly related to environmental protection. The two bureaus reporting to the Assistant Commissioner , the Bureau of Engineering and the Bureau of Food and Drugs, represent two difficult missions and functions.

Moreover, the Bureau of Engineering, although charged with primary responsibility for environmental protection, also includes other functions: industrial hygiene and radiological health. In any organization, one of the scarcest resources is the time of the executive, and the present combination of responsibilities limits the time that the Assistant Commissioner can devote to environmental protection.

This problem will be exacerbated by the increases in environmental protection staff which are necessary to implement Indiana's statutes and regulations. The Bureau of Food and Drugs and the Bureau of Engineering are currently two of the largest Bureaus of the Board of Health. Together, they account for nearly half of all the personnel contained in the Board of Health's six bureaus. Tripling the size of the environmental protection staff, as recommended in Chapter 3.0, will constitute a serious burden on the capacity of the Assistant Commissioner for Environmental Health to provide effective supervision and program direction.

Even if changes were made to relieve some of the administrative burden on the Assistant Commissioner for Environmental Health (e.g., the creation of an Assistant Commissioner position with responsibility only for environmental protection programs), the question of whether there should be a separate agency for environmental protection activities will still remain. Several arguments have been advanced in favor of such a separate agency. These are:

1. The concerns and operations of environmental protection functions have become increasingly differentiated from traditional public health operations. Environmental protection activities require new types of skills; they have attracted new client groups. Some persons we interviewed argued that environmental protection functions should not have to compete for funds with traditional public health programs. These persons also argued that environmental protection programs have suffered from such competition within the State Board of Health in Indiana.
2. A separate agency could be more accountable for its actions -- to the Governor, the Legislature, and the citizens.

3. A separate agency could have increased public visibility as compared to a unit located within the Board of Health. This increased visibility could increase the public's awareness of environmental problems and emphasize the State of Indiana's commitment to environmental protection.

4. If environmental protection functions in Indiana are expanded in accordance with our recommendations, the functions will be large enough to justify a separate agency. If present trends continue, environmental programs may, by force of their numbers alone, change the character of the SBH.

On the other side of the argument, there are those who argue that environmental protection should remain in the Board of Health. Their arguments include the following:

1. Environmental protection is a public health function. As such, it should remain with other related public health functions and continue to be a part of a total state program in this area.

2. With specific reference to Indiana, some individuals we interviewed argued that environmental protection programs have profited from their location in the State Board of Health because that agency has a long tradition of professionalism and an experienced, respected Commissioner.

These are the proper arguments which must be taken into account when deciding this question of a separate state agency. Unfortunately, the conflict between the two sides cannot be resolved by empirical investigation. For example, with regard to the question of whether environmental programs have suffered or profited from their inclusion in the Board of Health, there is no scientific method which will answer this question. Our study shows that environmental protection programs are understaffed, but it is the result of many factors. There is no way that we, as management consultants, can determine whether the lack of a separate agency for environmental protection is one of these factors; and if so, whether it is a major factor.

Our findings on this question, therefore, do not relate directly to program performance. We cannot say, for example, whether a separate state agency for environmental protection will result in improved inspection of pollution control facilities or improved monitoring of environmental quality. What we can say is the following:

- Environmental protection activities, over the last decade, have become increasingly differentiated from the traditional public health concerns, and this trend is likely to continue in the future.
- Environmental protection is the fastest-growing program in the Board of Health, and these growth trends are likely to continue in the future.
- There are administrative advantages to be derived from a separate agency. These include improved program accountability and visibility.

The final part of this question is whether environmental functions from the Department of Natural Resources should be removed from that Department and located in some other agency (e.g., a separate agency for environmental protection or management). At the present time, there are a number of organizations within the Department of Natural Resources which directly contribute to (or support) the state's environmental protection efforts. Some of the most important of these are the following:

- Division of Water. This Division is charged with developing, managing and conserving the state's water resources. Activities performed pursuant to these responsibilities which require some coordination with the State Board of Health are: water resources planning, river basin planning, and permits for construction on floodways. Staff members of the Planning Branch of the Division of Water maintain close liaison with the Special Projects Section of the Division of Water Pollution Control at the Board of Health as they develop water resource plans and river basin plans for the state. The regulation Branch, which issues permits for construction on floodplains, maintains liaison with all sections of the Board of Health which must also issue permits for construction.

- State Water Plan Section. This Section is a small unit in the Department of Natural Resources charged with developing a State Water Plan for Indiana. In performing their responsibilities, staff members of this Section must maintain liaison with the members of the Special Projects Section of the Division of Water Pollution Control in the Board of Health.

- Geologic Survey Division. The main area of interaction between this Division and the Board of Health results from requests from the Board of Health's Division of Sanitary Engineering for information relating to a proposed sanitary landfill — e.g., if there are questions about soil conditions.
- Oil and Gas Division. Among other things, this Division is responsible for the disposal of oil and salt water that is produced as a by-product of oil production. Whatever the method of disposal, it poses a potential pollution hazard, and methods must be developed in cooperation with the Board of Health.
- Law Enforcement Division. This Division maintains 141 uniformed officers in the field to enforce the regulations of the Department of Natural Resources. One of their responsibilities is to report fish kills to the Water Pollution Control Division of the Board of Health for immediate action. Close cooperation between this Division and the Board of Health is essential for quick response to water pollution incidents.

Our interviews in the Department of Natural Resources, supplemented by interviews in the State Board of Health, lead us to the following conclusion: the location of these functions in the Department of Natural Resources has not caused any serious problems of coordination or duplication of functions. The Board of Health and the Department of Natural Resources have established a harmonious working relationship. They have divided and allocated the various functions which are potentially overlapping. They communicate and coordinate their activities with each other. This coordination and cooperation is facilitated by the fact that the Technical Secretary of the Stream Pollution Control Board sits on the Natural Resources Commission, and the Director of the Department of Natural Resources is on the Stream Pollution Control Board.

Any problems in coordination which do exist are attributable to two conditions:

- The general understaffing of the Bureau of Engineering in the Board of Health. There are several matters where coordination between the Department of Natural Resources and the Board of Health is desirable and important (e.g., water resources planning). When such coordination is slow, staff in both the Board and the Department cite staff shortages in the Board of Health's Bureau of Engineering as the cause.

- There are no established procedures for coordination of activities between the two agencies. Good relations between the two agencies in the past have made unnecessary the establishment of formal procedures to mandate and guide coordination. With the absence of sufficient manpower in the Board of Health, those activities which are not specifically mandated are necessarily neglected. This is an unfortunate development, since closer and directed cooperation between the two agencies would be productive for the overall environmental protection effort.

4.1.3 Should the Three Boards be Consolidated?

At the present time there are three Boards which discharge certain policy-making functions with regard to environmental protection in Indiana: the Stream Pollution Control Board (SPCB), the Air Pollution Control Board (APCB), and the newly-created Environmental Management Board (EMB). All three Boards have no staff of their own, but rather rely on staff provided by the Board of Health's Bureau of Engineering. As we will demonstrate below, the legislative authority for the EMB contains many ambiguities and potential conflicts between this new Board and the existing Boards. Thus, it is unlikely that the EMB as presently constituted will be able to realize the full potential for coordination of environmental protection activities, for giving new visibility to environmental protection programs, and for serving as a forum for greater public participation in fashioning environmental policy.

The EMB reflects a compromise between those who wanted an independent, environmental super-board and those who believed that the task of pollution control should remain firmly within the domain of public health. As established, the EMB gives new visibility to the theme of environmental protection and serves as a forum for greater public participation in that enterprise. But the Board was superimposed upon an existing control structure that remains essentially unaltered, and it is not yet clear how the EMB will fit into the pre-existing structure. On its face, the Act gives it wide-ranging powers, many of which appear to overlap those of the SPCB and APCB under their own separate legislation. At the same time, the Act provides that the EMB may transfer any of its duties or powers or delegate the performance of particular functions to one of the other two Boards.[1] Evidently, the Act contemplates the possibility of numerous such transfers or delegations, since it vests many powers alternatively in "the board or an agency".[2] This flexibility may be especially useful for supplementing inadequacies in the pre-existing authorities of the SPCB and APCB by letting them draw upon the EMB's rich storehouse of powers. For example, it may be doubted whether, under their own statutes, the SPCB can require submission of monthly operating reports from industrial dischargers, or the APCB prescribe emission standards, or either the APCB or SPCB establish a full-fledged permit system for construction and operation of control facilities. But such doubts can easily be circumvented by transfers of the necessary authorities from the EMB.

On the other hand, there are certain powers which EMB must retain if it is not to abdicate its essential functions of program coordination, planning and review, and other powers which it may wish to retain. The question then arises how the EMB, in the exercise of these powers, will relate to the Air and Water Boards.

On this point, unfortunately, the Act is obscure. It states that, "[n]otwithstanding any provision of this article [the EMA], wherever a duty was imposed upon or power granted to one of the agencies [SPCB or APCB] under the provisions of laws existing prior to this article, then such duty or power shall be exercised by such agency."[3] This supplements a statement that "[t]he powers and duties of said boards . . . shall not be affected except as specifically altered or changed in this article or pursuant to this article,"[4] and a statement that these boards "shall continue to exercise all powers and perform all duties now imposed upon them in the same manner as prior to the enactment of this article, except as their powers and duties are modified by this article."[5] Does the first of these statements negate the references to alteration and modification in the second and third? If the EMB, in the exercise of its duty to review a proposed regulation of the SPCB or APCB, refuses to approve it, would such refusal encroach impermissibly upon powers hitherto vested in the latter Board? May the EMB adopt regulations governing issuance of permits for construction of wastewater treatment facilities, when the function of approving plans and specifications for such facilities — a component feature of the proposed permit system — was previously performed by the SPCB? Or may two sets of approvals, one from SPCB and one from EMB, hereafter be required?

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[1] 13-7-6-4, 13-7-6-5

[2] As used in the EMA, "agencies" mean the SPCB and APCB. 13-7-1-2(2)

[3] 13-7-6-7

[4] 13-7-2-9

[5] 13-7-6-3

The EMA furnishes no clear answers to these and similar questions. The possibility of future battles between the Boards, however, remains. And regardless of the understandings reached among them, polluters may have a field day challenging Board actions in court on the ground that they lack statutory authorization. Perhaps the greatest defect in the environmental legislation of Indiana is this failure to articulate the allocation of powers and functions between the EMB and the other two environmental Boards.

4.1.4 The Question of Field Work

Environmental protection, like many other state responsibilities, is concerned with problems that are not concentrated in the state capital, but rather are found throughout the state. In order to meet its responsibilities, then, the state agency concerned with environmental protection must: (1) utilize the resources of other governmental agencies which have personnel located in other parts of the state; and/or (2) locate or send its personnel into the field. In all likelihood, both strategies will be used, and each raises questions for organization of the state agency concerned with environmental protection. These questions are:

1. If the resources of other governmental agencies are utilized for field work, what is the most effective division of responsibilities between various governmental units?
2. If personnel from the state agency concerned with environmental protection are sent into the field, should they be dispatched from the central office in Indianapolis, or should there be regional field offices?

With regard to the first question, there are a number of governmental agencies which have field personnel who could be utilized to assist in environmental protection efforts. For example, the federal government has personnel who perform surveillance activities in Indiana. The Department of Natural Resources has field personnel who observe and report pollution incidents. The most important type of government unit for environmental protection, however, is local governments. A thorough treatment of the relationship between the state government and local governments in the area of environmental protection would require extensive analysis of the operations of local governmental efforts — a task which was beyond the scope of this study. Nevertheless, our study did yield several findings with regard to local governmental relations.

1. Local government efforts in environmental protection constitute an important part of the total state effort to control pollution.

    - In air pollution control, for example, ten local governmental units have enacted air pollution control ordinances and established programs to implement these ordinances. These local activities vary in their scope and level of effort, but several are comprehensive and even include laboratory capabilities. Estimates presented in the State of Indiana Air Pollution Control Implementation Plan indicate that, if fully staffed, local air pollution control agencies could account for approximately half of all air pollution control personnel working in the state.

    - Local health departments have responsibilities in the areas of water pollution control, solid waste management, and the protection of public water supplies. There are 105 such local boards at the present time — one in each county and additional boards in several municipalities. While the activities of these boards vary considerably, many do implement local pollution control ordinances.

2. State environmental protection officials cooperate with local governmental officials in pollution control activities, and there is an effort to coordinate activities between the two levels of government.

    - Staff from the Division of Water Pollution Control and the Division of Sanitary Engineering notify local health department officials when they are visiting local areas on surveillance or enforcement activities.

    - State personnel make a practice of sending copies of correspondence with operators of pollution control facilities to the local health departments where those facilities are located.

    - Personnel from the Air Pollution Control Division make regular visits to local agencies operating air pollution control programs and also provide technical assistance to those agencies.

3. To date, however, the state government has not conducted a systematic survey of the local resources available for pollution control, and has not established a plan for maximum utilization of these local resources.

    - In air pollution control, for example, the resources available at the local level are quite significant. It is important, however, for the state to define which functions are best performed by the state and which by local agencies. Although some consideration has been given to these questions by personnel in the Division of Air Pollution Control, the relationship between the state and local agencies has not been defined; indeed, the state does not have a complete inventory and evaluation of available local resources.
    - In water pollution control, solid waste management and the protection of public water supplies, consideration has been given to the expansion of local pollution control efforts, but these have not yet resulted in local program development.

The second organizational question regarding field work, mentioned at the beginning of this section, is whether there should be regional field offices.

Until 1968, the Board of Health had several District Offices in various regions of the state. When they were created in 1947, these field offices were to be miniature Boards of Health in each region and were supposed to encourage the development of county boards of health which might assume some of the state's public health functions. They never fulfilled this original objective, largely because of the inability of the District Offices to attract medical personnel. As a consequence, instead of becoming miniature Boards of Health, they became field offices for some of the functions of the State Board of Health, particularly environmental protection.

The arguments in favor of field offices are the following:

- Strategically located field offices could insure that increased attention is devoted to specific geographical areas with concentrated environment problems.

- Field offices could assist in the important functions of monitoring and providing technical assistance to environmental protection activities undertaken by local governments.
- Field offices enable citizens in distant reaches of the state to have easier access to environmental programs. By providing greater visibility for environmental programs in all parts of the state, they encourage citizen awareness and participation in such programs.
- Field offices could reduce the amount of travel time spent in field activities.

The chief disadvantages which must be considered are the overhead costs involved in the maintenance of field offices and the potential loss of effective managment and direction of these field offices. A decision was made in 1968 by policy-makers in the Board of Health to eliminate the District Offices on the grounds that both of these disadvantages associated with the District Office structure were serious enough to warrant their dissolution.

Since there were no field offices in operation at the time of this study, much of our evaluation of these arguments must rely on opinions, rather than direct observation. Our discussions with the members of the Board of Health staff, however, have yielded the following findings. Many staff members, particularly field personnel who live elsewhere than Indianapolis, favor the return of a field office structure. They believe that field offices would enable them to provide better services to areas far away from the center of the state. These employees spend most of their time in the field, and regard weekly trips to the office in Indianapolis as detracting from their field services. This is not to say, however, that all staff favor a field office structure. Several, particularly those in policy-making and administrative positions, expressed reservations about problems of overhead costs and direction and monitoring of field personnel.

In addition these staff opinions, one final finding from our analysis relates to the spatial distribution of pollution problems in the state. Two major determinants of pollution problems are population and industrial concentration. A demographic analysis of the state indicates that there are two areas of the state where these concentrations are so significant as to warrant permanent location of field staff: Marion County and northwest Indiana (the Lake and Porter County area). Clearly, Marion County's problems can be treated by staff from the central office of the state agency responsible for environmental protection. Northwest Indiana, however, is a different problem, and is one case where a regional field office structure is warranted.

4.2 Short-Range versus Long-Range Recommendations

In the preceding analysis of the organization of Indiana's environmental protection activities, it was clear that there are two levels at which one might discuss problems of organization. The first level concerns those organizational issues relating to the internal structure and functioning of the State's environmental activites: issues such as the structure of the State Board of Health at the level of the Assistant Commissioners, the internal restructuring of the Bureau of Engineering, and the relations between environmental protection functions and other functions performed within the Board of Health. These are issues which must be dealt with immediately to ensure that the proposed staff increases can be implemented effectively. Staff increases of the size we recommend must be carefully planned, and organizatonal implications must be considered. Supervisors will find that their administrative jobs have increased drastically in scope and complexity; new functions will be performed which may be unfamiliar ones to present staff, and which may introduce new supervisory issues. With an increase in size, an increase in specialization of staff responsibilities is likely, and this increased specialization may limit the organization's flexibility unless corrective steps are taken. To solve the problems presented by the increased size of the organization, we have prepared a number of short-range recommendations, which appear in Section 4.3.

In addition to these short-range issues, there are a number of other organization issues which are of less immediate concern because they do not affect the implementation of manpower increases. Such long-range issues include: whether to remove environmental protection functions from the Board of Health; whether to transfer the powers of the APCB and SPCB to the EMB; whether there should be a regional field office structure; and whether consideration should be given to further internal reorganization. We will discuss these issues in more detail in Section 4.4.

4.3 Short-Range Recommendations

On the basis of the findings presented in Section 4.1, we make the following recommendations.

1. We recommend that environmental protection functions in Indiana be consolidated under a single Assistant Commissioner for Environmental Protection, and that he be responsible for these functions only.

In Section 4.1, we presented the following findings:

- The present Assistant Commissioner for Environmental Health has the responsibility for several programs not related to environmental protection. These programs, particularly those in the Bureau of Food and Drugs, make demands on his time for administration and supervision, and necessarily detract from his attention to environmental protection activities.

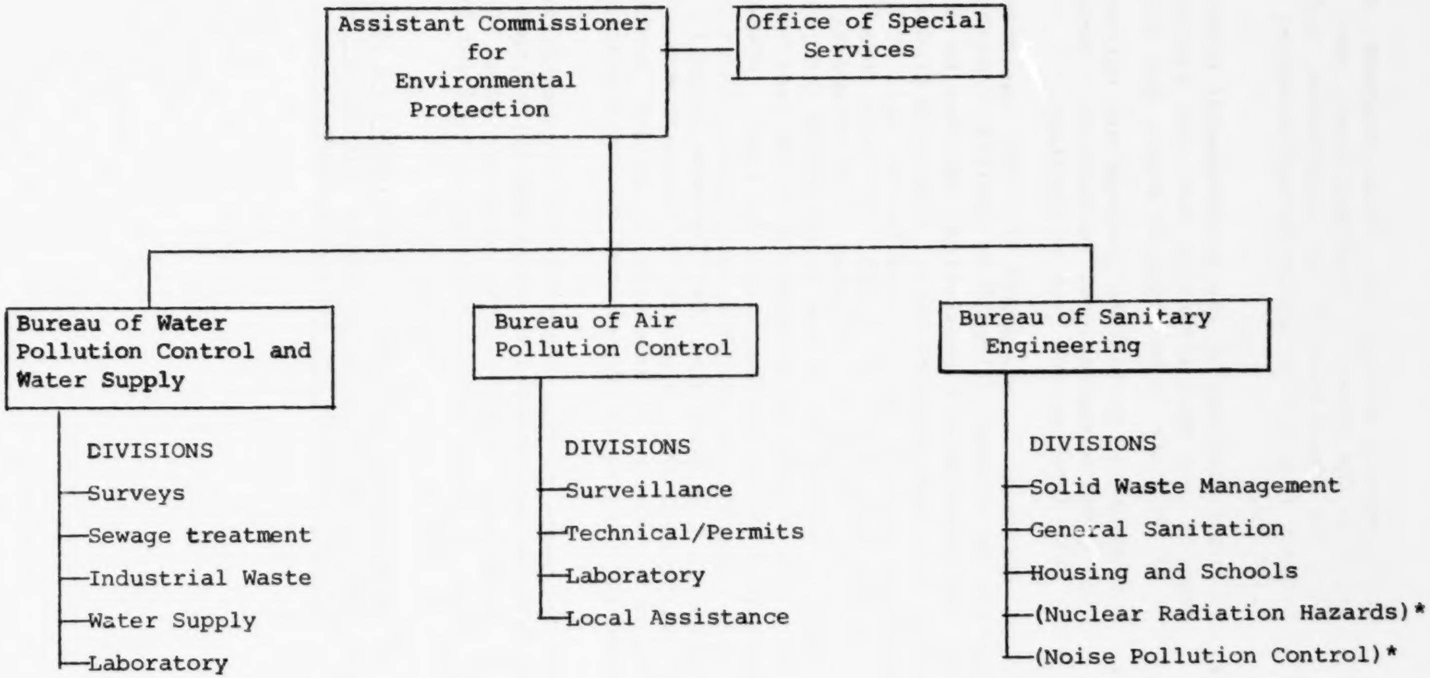
- Expanded programs in the environmental protection area will require even more attention from this Assistant Commissioner if they are to be properly supervised and directed.
- Environmental protection programs are currently not given high-level organizational recognition. Expanded programs in this area warrant such recognition.

To solve these problems, we recommend that the Assistant Commissioner for Environmental Health be retitled "Assistant Commissioner for Environmental Protection" and that he be given responsibility for these programs only. Unrelated programs (food and drugs, industrial hygiene, radiological health) will be moved to some other part of the State Board of Health. Of these three programs, radiological health is the most closely related to environmental protection, and we should explain briefly why we are recommending its removal. At the present time, this program is concerned with the radiological effects of medical operations (X-ray equipment and the like). These problems are different from radiological problems associated with atomic-powered energy generation, and we feel that they are more properly located with medical or health programs. A program oriented toward environmental radiation hazards, when it is developed in Indiana, would properly be located under the Assistant Commissioner for Environmental Protection.

It is beyond the scope of this study to make recommendations about where these other programs not related to environmental protection whould be located. It is obvious, however, that decisions about where to relocate programs as large as those under the Bureau of Food and Drugs will require careful analysis.

2. We recommend that the offices reporting to the Assistant Commissioner for Environmental Protection be organized in accordance with the following organization chart.

Chart 3: Proposed Organization Structure for Indiana Environmental Protection Activities


Assistant Commissioner for Environmental Protection
Office of Special Services
Bureau of Water Pollution Control and Water Supply
DIVISIONS
Surveys
Sewage treatment
Industrial Waste
Water Supply
Laboratory
Bureau of Air Pollution Control
DIVISIONS
Surveillance
Technical/Permits
Laboratory
Local Assistance
Bureau of Sanitary Engineering
DIVISIONS
Solid Waste Management
General Sanitation
Housing and Schools
(Nuclear Radiation Hazards)*
(Noise Pollution Control)*

*Possible Divisions for future consideration

There are two key elements to this proposed organization structure: the establishment of three new units at the Bureau level, which will have many of the same functions as the present Divisions of Water Pollution Control, Air Pollution Control, and Sanitary Engineering; and the establishment of an Office of Special Services to perform many of the staff functions which are presently being performed either minimally or not at all.

The first part of this recommendation involves raising some of the Divisions to Bureau level and some of their Sections to the Division level. This is clearly consistent with the recommendation to consolidate environmental protection activities under an Assistant Commisioner for Environmental Protection. It also is warranted by the increased size of these organizational units. These new Bureaus will be as large as other units in the Board of Health which have Bureau status. The functions and internal structure of these new bureaus will be as follows:

- Bureau of Water Pollution Control and Water Supply. This Bureau will contain Divisions of Surveys, Sewage Treatment, and Industrial Waste, which will perform essentially the same functions as the existing Sections of the same name. We also propose the addition of two new units which, unlike Surveys, Sewage Treatment, and Industrial Waste, are not part of the existing Division of Water Pollution Control. These are:
    - -- a Laboratory Division. This simply represents a transfer of the Water and Sewage Division from the Bureau of Laboratories into the new Bureau of Water Pollution Control and Water Supply. Its functions will be unchanged.
    - -- a Water Supply Division. This represents a transfer of the Water Supply Section from its current location in the Division of Sanitary Engineering and the elevation of this unit to Division status. Its functions will remain the same.
- Bureau of Air Pollution Control. The Sections of the existing Division will be raised to the level of Divisions. In addition, we propose the addition of a new Division of Local Assistance to perform the key task of assisting, monitoring, and reviewing local air pollution control activities. As we indicated in Section 3.1.4, local air pollution control programs constitute an essential part of the total state effort in air pollution control. At present, the Division of Air Pollution Control is paying insufficient attention to the function of effective utilization of these local resources. The recognition of this function in a separate division should contribute to its performance.

- Bureau of Sanitary Engineering. The proposed Bureau of Sanitary Engineering represents essentially the elevation of the Division of Sanitary Engineering to Bureau status -- with two significant changes in internal structure. The Water Supply Section will be removed and transferred to the new Bureau of Water Pollution Control and Water Supply; and the solid waste management function, currently a part of the General Sanitation Section, will be elevated to Division Status.

  Thus, in addition to Solid Waste Management, the other proposed Divisions will be: General Sanitation,and Housing and Schools, each performing essentially the same functions as under the present structure (except that solid waste management will be removed from General Sanitation).

  We make these recommendations regarding the General Sanitation and Housing and Schools Divisions with some reservations. The limited scope of our study prevented us from studying their functions. It is possible that these functions ought to be located elsewhere. We recommend that this question be given further study.

  In the event that new environmental protection functions are developed in Indiana (e.g., noise pollution control, control of atomic energy radiation hazards), these new functions could become Divisions in the proposed Bureau of Sanitary Engineering.

One controversial organizational decision with regard to the proposed bureaus is the transfer of the Water Supply Section to the proposed Bureau of Water Pollution Control and Water Supply. The arguments in favor of maintaining the water supply function separate from water pollution control are the following:

- According to water supply specialists, the function of protecting public water supplies has traditionally been a health concern and not a pollution control concern.

- According to some staff members in the Bureau of Engineering, other water supply specialists in midwestern states have evaluated the experience of combining water supply functions with water pollution control functions in their member states, and have come to the conclusion that such a combination has worked to the detriment of the water supply function. In such situations, water supply functions are given low priority and are given insufficient manpower and budgets.

- Staff members in the Division of Sanitary Engineering and the Water Supply Section argue that since water supply has been separate from water pollution control for a number of years with no apparent problems resulting from this arrangement, the burden of proof is on those who propose changing the situation.

In reply, we would offer the following findings which led to our conclusion to include water supply with water pollution control.

- A number of activities performed in water supply are also performed in water pollution control -- e.g., review of applications for construction permits; supervision and inspection of construction; review and approval of operating reports; inspection of operations and operator certification. Even though the type of facility is different, the similarity of functions and the similarity of skills required in performing these functions suggests that cooperation along functional lines is possible. It may be possible, for example, to achieve costs savings by utilizing field personnel from both water pollution and water supply to provide more comprehensive field services.
- Much of the paperwork for both water supply and water pollution control is the same (A-95 Clearinghouse reviews, permit programs, and the like). Better coordination in the processing of this paperwork could be achieved by placing both functions in the same bureau.
- Water is a single resource, no matter what its quality, quantity or location. Some argue that the only difference between water pollution control and the protection of public water supplies is a difference in water quality standards. Drinking water standards are the highest water quality standards, but the question is one of degree rather than one of fundamentally different functions in achieving those standards.
- Water supply and water pollution are interrelated.For example, ground disposal of wastewater (by spray irrigation or sand filtration) is receiving more attention as a concern for groundwater quality. Migration and location of groundwater is of major significance to these forms of wastewater disposal.

- While it is true that there is always a danger of a small Division being ignored by a large Bureau, such a situation is not inevitable. There are organizational devices to limit tendencies in this direction; note, for example, that water supply is given organizational recognition as a Division in our proposed structure; note also that we have specifically added Water Supply to the name of the Bureau, thereby indicating that water supply is a separate, recognized function.

While we believe that these findings effectively counter the arguments presented in favor of retaining water supply as a separate function, we do share the concern of the water supply personnel that they may have difficulty competing for funds and manpower within a Bureau which is primarily concerned with pollution control activities. Therefore, we believe that this potential problem should be duly recognized by the Director of the Bureau of Water Pollution Control and Water Supply, and by the Assistant Commissioner for Environmental Protection.

We also realize that if there is an environmental protection agency separate from the Board of Health (as we recommend under our long-range recommendations), the Board of Health still may retain some residual authority to protect the public from health hazards associated with water supply. The exact nature of this authority, however, is a matter which will require further study. We therefore recommend a thorough investigation of this question during implementation of these recommendations.

Office of Special Services

The second part of our recommended new organization is the creation of an Office of Special Services, whose Director will report directly to the Assistant Commissioner. It was clear from our study that certain staff functions were receiving only minimal recognition in Indiana. Among these were planning, standards development, legal services, technical information systems, manpower planning and development, and public information. They were either located within program offices (for example, planning), or were performed by personnel who had other duties which claimed the bulk of their time and attention (for example, standards development). Still other of these staff functions are not being performed because of the lack of certain types of professional staff, for example, manpower planning and legal services. Therefore, we propose that the Office of Special Services have the following functions: Planning and Evaluation, Legal Services, Standards and Regulation Development, Technical Information Systems, Manpower Planning and Development, and Public Information.

The specific nature of the activities which constitute these functions will be as follows:

Planning and Evaluation:

- prepare river basin plans
- review or prepare metropolitan/regional water pollution and water resources plans
- prepare and coordinate program plans for air pollution and water pollution (in cooperation with the program bureaus)
- prepare grant applications for other Federal assistance (e.g., water quality management planning, solid waste management planning, etc.)
- act as central liaison between the EPA Regional Office and the state
- initiate, with the assistance of other relevant state agencies such as the Department of Natural Resources, comprehensive land-use planning for the State of Indiana; participate in basin and inter-state planning efforts, e.g., GLBC, ORSANCO, ORBC.
- propose special studies
- review and approve statewide environmental impact assessments
- review local environmental impact assessments
- monitor and evaluate programs

Legal Services:

- receive data from all program offices, on a regular basis, indicating all potential enforcement actions generated by surveillance and monitoring activities of the program bureaus; analyze these data and prepare an immediate action report for the Assistant Commissioner on all proposed enforcement actions.
- prepare a monthly report on all enforcement actions (proposed and on-going), indicating the status of each.
- review surveillance data

- act as in-house legal advisor to the Assistant Commissioner and work with the Attorney General*

- provide legal advice and direction to the program bureaus and their staffs; advise staff of the legal and data requirements of effective enforcement actions

- keep records of hearings and orders

- act as liaison with EPA on permit and enforcement work

- review legal aspects of all proposed standards and regulations

- review local grant agreements and agency sub-agreements

Standards and Regulation Development **

- prepare standards and regulations for consideration by the SPCB, APCB, and EMB
- review existing standards and regulations
- conduct special studies into new technologies and new abatement methods
- facilitate technology transfer to pollution control facilities
- conduct such special studies as shall be requested by the Assistant Commissioner or the program bureaus through the Assistant Commissioner
- evaluate the economic, social, and environmental impact of proposed standards and regulations
- provide evidence on economic, social and environmental impact of proposed plans and abatement methods at hearings and other enforcement actions

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*The exact relationship between the environmental protection legal services personnel and the staff in the Office of the Attorney General is a matter to be worked out by these two organizations. We assume that the Attorney General's Office would have the responsibility for handling all cases going to court, but that the legal staff in the Board of Health could handle the initiation of enforcement actions and hearings before any of the three environmental boards. Whatever the precise division of labor, one fact is clear; the Attorney General must be kept informed of all regulations, hearings and potential enforcement actions.

**One result of the passage of the Federal Water Quality Act Amendments of 1972 is that the emphasis on water quality standards will be replaced by a discharge permit program, and there will be a corresponding decline in manpower allocated to standards development. Many of the activities of this office, however, such as regulation development, special studies, and the like, will be unaffected by this change.

- provide advice to the Assistant Commissioner and program bureaus on questions of economic, social, and environmental impact of pollution control

Technical Information Systems

- develop and maintain, in cooperation with the program bureaus and the Division of Systems and Computer Services, a comprehensive environmental data handling system

Public Affairs

- facilitate public participation in environmental protection program
- initiate a public information and education program
- operate a central public information system, routing public complaints and requests for information to the program bureaus
- prepare press releases for the Assistant Commissioner and the program bureaus
- undertake, in cooperation with the Division for Health Education, such activities as may be important to publicize environmental protection activities

Manpower Planning and Development

- plan and conduct (or arrange to have conducted) in-house manpower development and training programs
- coordinate education and vocational training programs for employees and plant operating personnel throughout the state
- provide advice to the Office of Personnel and Training on personnel problems in the area of environmental protection
- administer operator certification program
- forecast environmental protection manpower needs for the State of Indiana (both private and public sectors, and all levels of government) and communicate the results of these forecasts to state education institutions and other interested federal, intra-state and local organizations.

Many of the activities to be performed by the Office of Special Services have not been performed in the past. Others, however, are activities which are currently the responsibility of the program Divisions of the current Bureau of Engineering. In order to understand the impact of this new Office of Special Services, it is worthwhile to consider briefly some of the activities transferred to the Office of Special Services and the implications of this transfer for the performance of these activities. The following are the most important:

- Many planning activities (e.g., river basin plans, metropolitan/regional, water pollution and water resources plans) are currently located in the Special Projects Section of the Divison of Water Pollution Control. With the creation of the Office of Special Services, all of these activities are transferred to the new Office, and the Special Projects Section is abolished.

- The preparation of program plans, preparation of grant applications, and liaison with the EPA Region V Office are activities currently performed by the program Divisions. These activities will be transferred to the new Office of Special Services to assure a coordinated and comprehensive approach to these activities. At the same time, the Office will necessarily rely on staff from the new program Bureaus in the performance of these activities.

- Review and approval of environmental impact statements is currently being performed in the program Divisions. It will be transferred to the Office of Special Services which may call on the program Bureaus for technical advice.

- All enforcement work, including the legal aspects, is currently performed by the program Divisions, with some assistance from the Board of Health's Hearing Commissioner. Most of this work will be transferred to the Office of Special Services, though the technical aspects of surveillance and preparation of data will remain in the new program Bureaus. Thus, enforcement will be a shared function, with the legal staff of the Office of Special Services providing advice and direction to program personnel and also handling the strictly legal aspects. The Office of Special Services will also provide a comprehensive review of all potential and pending enforcement actions. Such a review, prepared for the Assistant Commissioner, will also be available to the program personnel to inform them of the status of enforcement actions.

- Standards and regulation development and the conduct of special studies are currently being performed by personnel in the program Division, particularly by Division Directors and selected staff. These activities will be transferred to the new Office of Special Services, and they will be expanded through the addition of new professionals such as economists and planners. Liaison will be maintained with the new program Bureaus to assure effective and coordinated performance of this function.

- Technical information systems are being developed on an ad hoc basis by various personnel in the current program Divisions. This activity will be transferred to the new Office of Special Services where it will receive more comprehensive treatment.

- Public affairs activities are currently performed by the program Divisions. These activities include response to complaints and requests for technical information, and a limited program of public education. Within the new Office of Special Services, a public affairs team will enlarge the public information and education program and encourage public participation in environmental program planning. This team will also operate a central complaint and public information system, routing these complaints and requests to the proper program specialists. Because they must respond to complaints and requests routed to them, the Program Bureaus will retain the function of "Technical Information".

- Manpower development is performed on a limited basis by the current program Divisions. At most, this includes the operation of operator certification programs and some in-house training. Both of these functions will be transferred to the Office of Special Services, where they will be expanded and the activity of manpower planning will be added.

While this new Office will be performing a variety of somewhat discrete functions, we recommend that divisional units within the office not be created. We feel that there are substantial advantages to be gained from maintaining a flexible, task-group structure within the Office of Special Services. By its very nature as a staff office, the various functions to be performed by it will clearly change over time. As new laws are introduced, enforcement actions may expand, contract, or require new skills. Certain planning activities currently underway, such as initial river basin planning, will be completed within the foreseeable future, and the planning staff will turn to other tasks.

Second, this Office should be able to perform a variety of special tasks and investigations for the Assistant Commissioner. For example, the Assistant Commissioner may want a special study to identify major violators of discharge standards and associated recommendations for action that would include an assessment of their economic and social consequences. Such a task could best be performed by an interdisciplinary task force composed of legal, technical information, and planning specialists. Such an interdisciplinary approach to environmental problems will result not only in a more comprehensive product, but will also broaden the outlook and concerns of the individuals working on such task teams. This is less likely to occur if strict organizational lines separate the functions of the Office.

We recognize, of course, that certain functions of the Office of Special Services will be more routinized (for example, technical information services and public information), and these functions will be performed by more permanent work units. A single office will not inhibit the performance of these functions, however, so long as their importance is recognized and appropriate work units are established to perform them.

Ultimately, the question of the detailed internal organization of the Office of Special Services is of secondary concern; it will, and should, reflect the administrative style of the Assistant Commissioner it serves. What is essential is that the need to perform these functions be recognized, that adequate staff -- both in numbers and in skills -- be hired to perform them, and that the staff functions be given organizational recognition. These objectives are met by the creation of an Office of Special Services

Summary

In summary, we have made two recommendations to deal with the immediate problems arising from the rapid expansion of Indiana's environmental protection activities. First, we recommend that all environmental protection activities be consolidated under a single Assistant Commissioner for Environmental Protection, and that this be his sole responsibility. Second, we recommend an internal reorganization of environmental protection functions which raises some of the Divisions to Bureau level, and which establishes an Office of Special Services to perform certain staff functions.

The key features of these recommendations are:

- They give significant organizational recognition to the environmental program through the appointment of an Assistant Commissioner for Environmental Protection. In the long-run, if a separate agency for environmental protection is desired, the organization under the Assistant Commissioner can, in effect, be transferred intact to create a separate agency.

- They provide for minimal disruption of present activities, and therefore, present few barriers to the absorption of new staff.

4.4 Long-Range Recommendations

The short-range recommendations presented in the preceding section are directed at problems which are of immediate concern for environmental protection programs in Indiana. They are necessary to correct certain deficiencies in the existing organizational structure, and, more importantly, they are necessary for the effective utilization of expected increases in environmental protection staff.

Once these immediate problems have been solved, consideration can be given to the other questions posed at the beginning of this chapter. Some of these questions cannot be answered definitively at this time. The question of whether to establish a regional field office structure, for example, depends on a detailed analysis of the field-work operations of the expanded environmental programs. Thus, some of the long-range recommendations do not provide answers, but rather explain the important factors which must be considered when the necessary information is available. With these caveats in mind, we turn to the following questions:

1. Should there be a separate state agency for environmental protection?

This is a question which has been widely debated in Indiana in recent years. As we indicated in our findings in Section 3.1, there are limitations on our ability to answer this question. There is, for example, no way to empirically test whether the location of environmental protection functions in the Board of Health helps or hinders program performance. On the other hand, we did indicate that there were certain facts which make such a separation a reasonable course to take. The growth of environmental protection functions and their increasing divergence from traditional public health concerns make location in the Board of Health less desirable in the future. Also, there are certain advantages to separation, e.g. some increase in accountability and visibility.

On the basis of these findings, we recommend the separation of environmental protection functions from the Board of Health. Specifically, this means that the environmental protection organization recommended in Section 4.3 (an Assistant Commissioner for Environmental Protection and the three Bureaus and one Office reporting to him) be removed from the Board of Health and established as a separate entity. The Assistant Commissioner would become the Commissioner of this new organization. Further details on this proposed organization will be provided in later parts of this Section which consider questions of Board structure, internal organization, and regional field offices.

Because of the importance of this issue, however, we wish to elaborate our position on this recommendation so that we are not misunderstood. First, as indicated above, this recommendation is not based on any judgments about the relationship between location of environmental protection functions and improvement in program performance. There is no empirical evidence for such judgments. Thus, our recommendation is not a negative reflection on the past performance of environmental protection activities under the Board of Health.

Second, to the extent that the recommendation is based on our conclusion that some increase in accountability and visibility will accrue from such a change in location, we are making certain judgments about the value of these results. In the final analysis, this question will be decided by Indiana's citizens and their elected representatives, who may place a different value on these results. Or, alternatively, they may decide that the same results can be achieved by other means.

Third, we are also basing this recommendation on our finding that environmental protection programs are becoming so large and so different from traditional public health concerns as to warrant separate recognition. Reasonable men may disagree on the extent to which this is the case. Indiana has a tradition of public health professionals who have distinguished themselves in the field of pollution control. During the last several years, however, environmental protection has assumed directions of its own which are increasingly diverging from traditional health concerns. Consider for example, the capabilities required of Indiana's new Commissioner of Health if environmental protection is to remain a major responsibility of the Board of Health. He must be an individual with an extraordinary range of interests and expertise. He must be concerned not only with both clinical practice and public health affairs, but also with the rapidly changing and expanding field of environmental protection. This means involvement in questions of land-use planning, civil engineering, new abatement technologies, traffic engineering, surveillance systems, and the like. The former Commissioner of Health was a man whose background and breadth of interests enabled him to involve himself effectively in environmental protection issues. Such individuals are very rare, however; and the job will require even greater breadth of interests and expertise in the future.

Finally, we are not suggesting that the health aspects of environmental protection are not important. Indeed, we recommend careful attention to the problem of coordination and cooperation between the proposed environmental protection organization and related activities remaining in the Board of Health. It is unlikely, however, that this will be a problem. The historical relationship between the Board of Health and the Department of Natural Resources is instructive. There is no reason why the relationship between the proposed organization and the Board of Health cannot be equally cordial and productive, particularly if the DNR experience is followed and provision is made for overlapping memberships on the Boards which provide policy direction to each of these agencies.

2. Should the present structure of three separate Boards for environmental protection policy be changed?

Our findings on this question, presented in Section 4.1.3, indicate that some change is necessary. The Environmental Management Act, which added a third Board (the Environmental Management Board) to the previously existing Stream Pollution Control and Air Pollution Control Boards, contains a number of ambiguities with regard to the allocation of powers and duties among the three Boards. These ambiguities, in the long-run, are serious enough to cause significant problems in the administration of environmental programs; indeed, they may even invite legal challenges to the state's authority to implement environmental programs.

The important question, however, is which direction this change should take. Several options are available:

- One could attempt to clarify the allocation of powers and duties among the three Boards. This involves deciding which powers must be transferred from the EMB to one of the other Boards, and how these Boards will thereafter relate to the EMB and its reserved powers--a complex problem. Having done so, moreover, one is still faced with the question of why there must be three separate Boards. Although the formation of the EMB did serve to bring more attention to environmental protection activities, we see no compelling rationale for continuing the division of the responsibility for environmental protection into three areas; indeed, such a division would inhibit the development of a comprehensive approach to environmental policy.

- One could abolish the Boards altogether, and vest their powers and duties in some other governmental unit, e.g. a new Department of Environmental Protection. Boards, however, have certain virtues: they bring the views of diverse groups of citizens to bear on important policy matters; they provide a check on the program administrator. These advantages would be lost if the Boards were eliminated altogether.

- One could abolish the SPCB and APCB and transfer their powers and duties to the EMB. This alternative solves the problem of ambiguity, and would be relatively simple to implement. Virtually all powers of the SPCB and APCB are alternatively vested in the EMB by the Environmental Management Act. Were it not for the provisions of the Act continuing the pre-existing jurisdictions of the Air and Stream Boards, the EMB would have almost the full range of currently available powers to

> make and implement environmental policy. Moreover, wherever powers spelled out in the EMA overlap with those in earlier statutes, the former are more impressive in scope and superior in their formulation.

Therefore, we recommend the third option, the abolition of the SPCB and APCB and transfer of their powers and duties to the EMB.

Several other questions arise, however, about the operation of an Environmental Management Board with such increased responsibilities. For example, should it continue to have a part-time Board, or should there be a full-time, salaried Board? We believe that a part-time Board could fulfill its responsibilities if it makes sufficient use of its authority to delegate matters to the Board's Technical Secretary. In the final analysis, of course, this is a question which only the EMB can decide after the nature of its work load becomes clear. In the meantime, we recommend retaining a part-time Board.

Another question about an EMB with expanded responsibilities is whether it will have its own budget. Under the Environmental Management Act, the EMB has the power to "[e]mploy or contract for such legal, professional and other personnel and assistance as may be necessary for efficient performance" of its "duties."[1] On the other hand, all monies for purposes of the Act must be provided through the appropriations of the State Board of Health.[2]

The question of a separate budget brings us back to the question of whether there ought to be a separate agency for environmental protection apart from the Board of Health. We have already recommended that such a separate agency be created. At the time this takes place, we recommend that the Environmental Management Act be amended to make clear that the EMB can supply itself with staff and supplies separate from the State Board of Health.

3. Should there be regional offices?

In the findings presented earlier in this chapter, we indicated that there were both advantages and disadvantages to a regional field office structure. The question of establishing such a field office structure turns on three central issues:

- Can the state be sure that there is a need for such offices; will such offices provide better service; will they facilitate performance of environmental protection activities; and will there be any cost savings?

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[1] 13-7-5-1(k).

[2] 13-7-17. Also, it is not clear whether the Board's "powers" are included within its "duties", for which it may employ or contract for personnel and assistance. Cf. the "duties" under 13-7-3 with the "powers" under 13-7-5.

- Can the central office make adequate provision for monitoring and direction of such field offices; and what organizational unit will be responsible for coordinating the activities of these units?
- Are there specific geographical areas of the state where concentrations of environmental problems are of such magnitude as to require full-time, on-site field personnel?

The answers to the first two questions must be derived from empirical analysis of program operations after environmental protection authorities have implemented the manpower recommendations presented in Chapter 3.0. We therefore recommend that these questions be considered, and that a regional field office structure be established if the answer to both questions is in the affirmative.

With regard to the third question, we indicated in our findings that Marion County and the Lake and Porter Counties area both had geographical concentrations of such magnitude as to require full-time, on-site staff. Marion County, of course, can be served by the central office directly, but the Lake and Porter Counties area will require a field office, and we therefore recommend that one be established.

4. What long-range changes in the internal organization of the agency are required?

The organization structure proposed for the short-range is a mixture of both program and functional orientations. In the future, it may be desirable to make further internal reorganizations, e.g., along the lines of a more functionally-oriented organization. We cannot make specific recommendations on this matter, however, since any further reorganization will depend on unforeseeable future developments. Nevertheless, it is important to point out some of the strengths and weaknesses of both the program and functional orientations, since these arguments will be central to any future study of this question.

The following are the primary advantages of a functional organization:

- A functional organization will better promote a coordinated environmental protection program. Planning can be done on a comprehensive basis to solve complex environmental problems, for example, the inter-media problems that arise when the effluent from stack scrubbing becomes a water pollution problem and the disposal of sludge becomes either an air pollution or a solid waste disposal problem.

- As priorities shift among various media, a functional organization can respond more quickly since it is not tied organizationally to the specific media.

- If the U.S. Environmental Protection Agency moves toward a functional organization, a similar organization at the state level would promote easier communication between federal and state environmental protection efforts.

On the other hand, there are certain disadvantages to a functional organization:

- It will be very difficult to staff a functional organization, since most environmental protection professionals are trained in a specific medium; there are few environmental "generalists" at this time.

- The technological and economic differences between various media and programs mean that some program specialists are likely to remain in the future.

- A functional organization will require more substantial organizational changes for an organization which has traditionally organized by program.

In favor of the program, or media, approach to the organization of Indiana's environmental protection program, the following advantages can be cited:

- Much of the technical education for environmental protection personnel is still program oriented.

- Even if the Federal Environmental Protection Agency moves toward a functional organization, most of the federal environmental protection legislation is still oriented toward specific media.

The disadvantages of a program organization involve the difficulty in achieving the advantages of the functional organization. Specifically, it may inhibit the development of comprehensive and coordinated environmental protection programs; it may inhibit the ability of control programs to solve complex inter-media problems; and it may limit the flexibility of the organization's response to shifting priorities among different programs.

CHAPTER 5.0

IMPLEMENTATION PLAN

In Chapters 3 and 4, recommendations were made to enable the State of Indiana to better meet its environmental protection objectives. These recommendations involved organizational and staffing changes and were to be implemented in two phases. The recommendations are summarized below:

Short-range Recommendations:

1. Increase manpower levels to those indicated in Chapter 3.
2. Change the title of the Assistant Commissioner for Environmental Health to Assistant Commissioner for Environmental Protection , with responsibilities only for environmental protection programs. This means that the Bureau of Food and Drugs and the radiological health and industrial hygiene functions of the Bureau of Engineering must be located elsewhere in the Board of Health.
3. Reorganize the Board of Health's environmental protection program to include three Bureaus -- for Water Pollution Control and Water Supply, Air Pollution Control, and Sanitary Engineering -- and an Office of Special Services to perform certain specified staff functions.

Long-range Recommendations:

1. Create a separate environmental protection agency, outside the Board of Health.
2. Introduce legislation to provide the Environmental Management Board with its own staff and budget, and to transfer the present powers and duties of the SPCB and the APCB to that Board.
3. Establish a field office in northwest Indiana, and consider the establishment of other field offices if the need is identified and if they can be monitored and supervised adequately.
4. Consider further reorganization, as operational and legal requirements change.

The recommendations proposed for the short-range should be implemented in 1973 in order for the State of Indiana to meet its objectives in the area of environmental protection.

5.1 Implementation of Short-range Recommendations

5.1.1 Increase in Manpower Levels

The increase in manpower from the present level of about 93 to a projected level of 289 will require careful planning. Approximately one-quarter of the increase in manpower will be for the newly organized Office of Special Services and many of the personnel in this office are new types of employees for the Board of Health -- i.e., planners, economists, lawyers, and manpower specialists. It is our recommendation that a Special Committee on Manpower Staffing be organized to conduct the hiring process. This Committee should include among its members the Director of the Board of Health's Office of Personnel and Training; the Assistant Commissioner for Environmental Protection; and the Chiefs of the Bureaus of Water Supply and Water Pollution Control, Air Pollution Control, and Sanitary Engineering. In addition, we recommend that the Director of the proposed Office of Special Services be added to the staff immediately and that he be initially assigned as Secretary to the Special Committee.

Some of the issues which should be considered by this Special Committee are the following:

- The existing pay scales and career opportunities within the Board of Health are insufficient to attract staff to meet its manpower needs. There should be changes in pay scales, job qualifications, structure for career advancement, and the like. The Board of Health's Office of Personnel and Training can assist in the development of recommendations to be presented to the state's Personnel Division.
- Of particular concern are middle management positions. At present, the Bureau of Engineering is deficient in managerial personnel. Tripling the size of the organization is going to require an increase in managerial and supervisory personnel. One of the obstacles preventing the Board from attracting managerial personnel at the present time is that salaries available for any position below the Assistant Commissioner are relatively low. The Board has made proposals to rectify this situation, and they should be adopted if the Board is to be able to solve this problem of middle management personnel.
- Hiring of new personnel should be an orderly process so as to permit sufficient orientation and training of new personnel. Such orientation is absent in the existing organization, but this deficiency should be rectified during the short-range implementation.

Whatever the decisions made by the Special Committee on these issues, it is essential that the Committee establish a firm timetable for staffing up to the recommended levels as soon as funds are available for these positions.

Another planning task which must be performed in order to effectively absorb these increases in personnel is that there must be adequate provision for overhead and support services for these new employees. The proposed Assistant Commissioner for Environmental Protection should delegate to the Director of the Office of Special Services the task of appointing some member of that Office as special officer for liaison with the Assistant Commissioner for Administration. In cooperation with the Assistant Commissioner for Administration, recommendations should be made to the Commissioner regarding provision of these overhead services.

5.1.2 Organization of the Program Bureaus

The organization of the new Program Bureaus involve three types of organizational changes.

First, most Divisions and Sections in the existing Bureau of Engineering will be elevated to Bureau and Division status, respectively. This should not be a difficult change to implement because, until manpower and space requirements dictate, most of the new units will occupy the same physical location as they did before elevation, and they also will remain unchanged in terms of unit working relationships. The only exceptions to this are the Special Projects Section which currently is part of the Division of Water Pollution Control. After reorganization, the functions of this Section will be transferred to the Office of Special Services. The other exception is the Water Supply Section which currently is part of the Division of Sanitary Engineering. In the proposed organization, this Section will be moved to the new Bureau of Water Pollution Control and Water Supply and elevated to Division status. This will require no important changes in functions, however, and should pose no special logistics problems.

Second, the Water and Sewage Division of the Bureau of Laboratories will be shifted from that Bureau into the proposed Bureau of Water Pollution Control and Water Supply and renamed Division of Laboratories. This change need not involve any physical relocation or change in functions; it consists simply in a change in lines of authority. Our recommendation is that the Director of this Division should report to the Director of the proposed Bureau of Water Pollution Control and Water Supply rather than the Director of the Bureau of Laboratories.

Third, we are proposing two new organizational units in the Program Bureaus, i.e., units which have no counterpart in the existing organizational structure. These are: the proposed Solid Waste Management Section in the proposed Bureau of Sanitary Engineering, and the proposed Local Assistance Division in the proposed Bureau of Air Pollution Control. Since these are new organizational units, their development will require additional work in implementation: the Directors of these new Divisions should be appointed; these Directors should define the missions and functions of their units for approval by their respective Bureau Directors and the Assistant Commissioner; they should work closely with the Special Committee on Manpower Staffing to staff up to full Division strength.

5.1.3. Creation of the Office of Special Services

The creation of a new staff office, reporting directly to the Assistant Commissioner for Environmental Protection, will permit many activities which are now neglected or are being performed in an inadequate fashion to be properly organized and staffed.

Since this office is entirely new to the environmental protection programs in Indiana, its development should proceed in the following way:

1. The Director of the Office should be appointed first.
2. He should be given the responsibility of evaluating the missions and functions proposed in this report and developing detailed plans for the operations of the Office. These plans should be evaluated by the Assistant Commissioner.
3. The Director should then work with the Special Committee on Manpower Staffing to assure that the needed personnel are obtained.

5.1.4 Development of Operating Procedures

While the organization of the new Bureaus is not substantially different from their present organization, the increase in their size will require significant changes in operating procedures. New management controls will have to be developed and implemented at the Assistant Commissioner, Bureau Director, and Division Director level, to ensure that the increased staff can be supervised adequately and so that its work can be planned properly.

Moreover, the new Office of Special Services may face special communications problems. It will have great need for the information and data generated by the Bureaus. Because this Office is a new organizational unit, however, procedures must be established to ensure such a result. Therefore, we urge that the new Assistant Commissioner for Environmental Protection, the Director of the Office of Special Services, and the new Bureau Directors give high priority to the immediate development of the required operating and supervisory procedures.

5.2 Implementation of Long-Range Recommendations

Three of our long-range recommendations are such that they could be implemented without extensive further study or analysis. These are:

the creation of a separate agency for environmental protection; the transfer of the powers and duties of the APCB and SPCB to the EMB and the establishment of an EMB budget separate from that of the Board of Health; and the establishment of a regional field office in northwest Indiana.

These long-range recommendations could (theoretically) be implemented in the near future. They do not require further study, and they do not depend necessarily upon the successful performance of some short-range recommendations. On the other hand, there are several reasons for postponing the implementation of long-range recommendations until those from the short-range have been successfully accomplished. Some of these reasons are:

- Implementation of the short-range recommendations is essential to meet the agency's most pressing and immediate needs. Implementation of long-range recommendations at the same time might detract from the effort required to perform those short-range tasks effectively.

- Implementation of the short-range recommendations will facilitate implementation, at a later date, of the long-range recommendations.

As an example of the first reason, consider the problems involved in establishing a regional field office in northwest Indiana. The problems inherent in monitoring and supervising a distant field office are substantial. To attempt to do this before implementation of the short-range recommendations might exacerbate the management problems involved in the rapid expansion of environmental protection programs.

This second reason is particularly appropriate for another of the long-range recommendations: creation of a separate state agency for environmental protection. For example, when the environmental protection functions have been reorganized within the Board of Health along the lines recommended in our short-range recommendations, these functions will be consolidated into one organizational unit under the direction of a single Assistant Commissioner. Such a unit could then be more easily transferred out of the Board of Health and made into a separate agency.

With regard to the creation of a single Environmental Management Board with broadened powers, implementation would involve legislative changes which would:

- Abolish the Stream Pollution Control Board and Air Pollution Control Board
- Transfer to the EMB all powers and duties vested in the old SPCB and APCB
- Permit the EMB to purchase staff, supplies and services separate from Board of Health appropriations

This means that all powers, duties and functions of the SPCB and APCB, as well as all records, assets, supporting staff, personnel, and unexpended balances and appropriations pertaining to the SPCB and APCB would be transferred to the EMB. The EMB would not create its own organization "from scratch". To the contrary, it would build around a nucleus consisting of staff currently employed by the State Board of Health, and rights of transfer would be preserved for all SBH employees who currently perform activities relating to environmental protection.

At the same time that legislation is being prepared to create a single Environmental Management Board, we recommend that consideration be given to implementing the recommendations resulting from our analysis of the adequacy of Indiana's legislative authority in the area of environmental protection. These recommendations, found in summary form at the end of Appendix C, are important tools which are necessary if the new EMB is to be effective in accomplishing its missions.

Finally, there are some long-range recommendations which require further study and information before they can be made in detail. These include the question of establishing complete regional field office structure (in addition to the office proposed for northwest Indiana) and the question of additional changes in the internal organization of environmental protection programs. We have recommended that these issues be considered by the new Governor, the new Commissioner of Health, and the new Assistant Commissioner for Environmental Protection.

Prior to such consideration, it would be inappropriate to attempt to discuss their implementation, except to suggest that a committee should be appointed by the Commissioner and Assistant Commissioner to study the important issues involved and to make recommendations on the timing of pending and potential changes. Such a committee might be similar in composition to the Steering Committee of this study. It should also include the Bureau Directors and Office Director of the new environmental protection organization. This committee should be required to report back with recommendations to the Commissioner and Assistant Commissioner by November 1, 1973.

APPENDIX A

MANPOWER REQUIREMENTS
FOR
ENVIRONMENTAL PROTECTION

Table A-1

State of Indiana Manpower Requirements

Administration

Employee Title	Manpower Need
Assistant Commissioner	1.00
Administrative Assistant	1.00
Bureau Directors:	
Water Pollution Control and Water Supply	1.00
Air Pollution Control	1.00
Engineering	1.00
Office Director:	
Special Services	1.00

Professional	6.00
Clerical	5.00
Total	11.00

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Table A-2

State of Indiana Manpower Requirements

Water Pollution Control: Surveys

Activity	Output Unit	Number	Frequency/ Annum	Hours per Unit	Manpower Need
Stream Monitoring	Sample Collected	96	26	1.93*	2.68
	Care of one Robot Monitor	11	1	100**	0.61
Water Quality Surveys	24-Hour Survey	96	1	109.5	5.84
	Other Surveys***	170	1	36.0	3.40
Fish Kills & Pollution Accidents Investigation	Investigation	80	1	48.0	2.13
Public Information					1.30
Special Reports					0.40
Administration	Administrative per Employee	16		0.2 MY	3.20

Professional	19.56
Clerical	4.33
Total	23.89

* EPA Region V recommends that the hours per unit be increased from 1.93 to 2.88

** The hours per unit for robot monitor care represents a significant increase over current hours per unit for this activity. Such an increase is required for output of adequate quality. EDP Region V recommends that the hours per unit be increased even more--to 327.

*** These include biological, limnological, grab, and treatment plant efficiency surveys. The hours per unit also includes pre-surveys and planning.

Table A-3

State of Indiana Manpower Requirements

Water Pollution Control: Sewage

Activity	Output Unit	Number	Frequency/ Annum	Hours per Unit	Manpower Need
Review Plans	Review Treatment Plan	130	1	18.0	2.16
	Review Sewer Plan	195	1	8.0	
Construction Grants	Review Application & Process	146	1	23.67	1.92
	Pre-application Conference	146	1	4.0	0.32
Inspections:					
Routine	Inspection	302	4	5.4	3.62
Construction	Inspection	55	4	5.4	0.66
Operating Permits	Review and Process	302	1	8.0	1.36*
Technical Information					0.93
Administration	Per Employee	11		0.2 MY	2.20

Professional	13.17
Clerical	2.92
Total	16.09

*EPA Region V officials suggest that a permit program meeting federal guidelines to be provided pursuant to §402 of the Federal Water Quality Act Amendments of 1972 may require more personnel.

Note:

It is recognized that there are approximately 3,100 semi-private sewage treatment or disposal facilities located throughout the State which require technical review and control. This work is presently performed in the General Sanitation Section of the Division of Sanitary Engineering which was excluded from this study. Thus, no manpower estimates are presented for programs relating to these facilities.

Table A-4

State of Indiana Manpower Requirements

Water Pollution Control: Industrial Waste

Activity	Output Unit	Number	Frequency/ Annum	Hours per Unit	Manpower Need
Scheduled Inspections:					
Industries					
• Regular	Inspection	1000	1	4.1*	2.28
• Problems	Follow-up	200	3	6.0*	2.00
Confined Feed Lots	Inspection	1000	1	4.1	2.28
Cyanide Isolation	Inspection	240	2	4.1	1.10
Tax Exemption Review	Review	105	1	1.0	0.06
Operating Permits	Review & Process	2240	1	4.0	4.98**
Review of Construction Plans:					
Industry	Review Plan	65	1	5.0	0.18
Confined Feed Lot	Review Plan	400	1	3.0	0.67
Review of Monthly Reports					
Industry	Review & Follow-up	1000	12	0.8	5.33
Confined Feed Lot	Review & Follow-up	500	12	0.5	1.67
Investige Coal Mine Drainage & Oil Pollution	New Program				1.00
Technical Information					1.84
Administration	Per Employee	23		0.2 MY	4.60

Professional	27.99
Clerical	6.21
Total	34.20

* EPA recommends an increase of hours per unit from 6.0 to 8.0 for follow-up.

** EPA Region V officials suggest that a permit program meeting federal guidelines (to be provided pursuant to §402 of the Federal Water Quality Act Amendments of 1972) may require more personnel.

Table A-5

State of Indiana Manpower Requirements

Water Supply

Activity	Output Unit	Number	Frequency/ Annum	Hours per Unit	Manpower Need
Review Construction Plans:					
Pools	Review Plan	130	1	8.0*	0.97
PWS		90	1	8.0*	
Routine Inspection of:					
PWS	Visit	435	2	4.0*	1.93
Semi-Public W.S.	Visit	1000	2	4.0	4.44
Review of Reports & Samples:					
PWS	Review Report	435	12	0.72	2.08
Semi-Public W.S.	Review Report	1000	12	0.72	4.80
Technical Information & Trouble Shooting					2.55
Administration	Per Employee	17		0.2 MY	3.40

Professional	20.17
Clerical	4.48
Total	24.65

* The hours per unit indicated represent an increase in the time presently spent on these items to achieve a qualitative increase in the work performed. EPA recommends that the 4 hours per unit for a PWS visit be increased to 8.

Note:
The anticipated adoption of new drinking water standards will have an effect on the work load of this section (specifically in the review of water supply reports and technical assistance areas). This impact should be more fully investigated once the new standards are in effect.

Table A-6

State of Indiana Manpower Requirements

Laboratories: Water Pollution Control and Water Supply

Activity	Output Unit	Number	Frequency/ Annum	Hours per Unit	Manpower Need
Lab Analysis & Equipment Maintenance					25.00
Quality Control & Special Studies					2.50
Local & Private Lab Certification and Training					0.50
Administration	Per Employee	28		0.1 MY	2.80

Professional	30.80
Clerical	6.00
Total	36.80

Table A-7

State of Indiana Manpower Requirements
Air Pollution: Surveillance

Activity	Output Unit	Number	Frequency/ Annum	Hours per Unit	Manpower Need
Inspections (Scheduled) 25 Ton Point Sources					
	Inspection	500	1	3.0	0.83
	Inspection	400	2	8.0	3.54
	Inspection	100	4	12.0	2.67
Operating Permits	Inspection	2347	1	3.0	3.91
Complaints & Field Patrol	Investigation	360	1	10.4	2.08
Special Surveys (for enforcement)	Survey				1.45
Stack Tests (in cooperation lab personnel)	Test	192	1	56.25	6.00
Technical Information					0.49
Administration	Per Employee	21		0.2 MY	4.20

Professional	25.17
Clerical	5.59
Total	30.76

Note:

At the present time, the State of Indiana performs field patrol in this area as a follow-up to complaints. If in the future a regular program of routine field investigation is adopted as is strongly recommended by EPA, it is estimated that an additional 7 man-years of effort will be required. This depends, however, on the extent of field patrol provided by local agencies.

Table A-8
State of Indiana Manpower Requirements
Air Pollution: Technical/Permits

Activity	Output Unit	Number	Frequency/ Annum	Hours per Unit	Manpower Need
Plan & Special Review	Review	390	1	7.4	1.60
Emergency Episode Plan	Review Plan Development & Operations	250	1	1.1*	0.12 0.50
Technical Information			Continuous		0.47
Operating Permits	Review & Process	2347**	1	4.0	5.21
Administration	Per Employee	8		0.2 MY	1.60

Professional	9.56
Clerical	2.11
Total	11.61

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* EPA recommends that the hours per unit be increased from 1.1 to 3.

** Assumes that local agencies will operate permit programs in same jurisdiction.

Table A-9

State of Indiana Manpower Requirements

Air Pollution: Laboratory

Activity	Output Unit	Number	Frequency/ Annum	Hours per Unit	Manpower Need
Monitoring Analysis and Calibration	Sample	20	60	7.5	5.00
Special Lab Analysis	Sample	20	60	4.0	2.67
CAMP Stations	Maintenance per Site	2		0.31 MY	0.62
Special Surveys					0.56
Stack Testing (in cooperation with surveillance personnel)	Test and Analysis	192	1	28.12	3.0
Administration	Per Employee	12		0.2 MY	2.40

Professional	14.25
Clerical	3.17
Total	17.42

*EPA recommends increase in time per unit from 0.31 to 0.50 man-year per site.

Table A-10

State of Indiana Manpower Requirements

Air Pollution: Local Assistance

Activity	Output Unit	Number	Frequency/ Annum	Hours per Unit	Manpower Need
Visits to Locals	Visit	10	12	24.0	1.60
Review of Local Reports	Review Reports	10	12	4.0	0.26
Review of Local Plan Review, Permit Programs,	Review		Continuous		2.00
Technical Assistance*					2.00
Administration	Per Employee	6		0.2 MY	1.20

Professional	7.06
Clerical	1.57
Total	8.63

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* Includes instrument calibration, special projects, etc.

Table A-11

State of Indiana Manpower Requirements

Solid Waste Management

Activity	Output Unit	Number	Frequency/ Annum	Hours per Unit	Manpower Need
Landfill Inspections	Visit	180	12	2.85	3.43
Inspection of Miscellaneous Solid Waste Sites	Visit and Enforcement	360	12	2.00	4.80
Review Construction Plans	Review Plan	50 *	1	8.62	0.23
Operating Permits	Permit	180		4.00	0.40
Public Education	Course	30	1	28.00	0.46
Technical & Planning Assistance			**Continuous**		2.00
Complaints					0.20
Administration	Per Employee	11		0.2 MY	2.20

* This number is expected to decrease in the future when most open dumps have been converted to land fills.

Professional	13.72
Clerical	3.03
Total	16.75

Table A-12

State of Indiana Manpower Requirements
Standards Development and Technical Information Systems

Activity	Manpower Need
Review Standards & Regulations	1.00
Special Studies: New Technologies, New Abatement Methods	4.00
Evaluate: Impact of Proposed Standards & Control Strategies	3.00
Develop Standards & Regulations for Board	1.00
Technical Information Systems	5.00
Administration	2.80

Professional	16.80
Clerical	3.73
Total	20.53

Table 2-13

State of Indiana Manpower Requirements

Legal Services

Activity	Manpower Need
Review Data	2.00
Prepare for Hearings	6.00
Attend Hearings	
Write Results & Prepare Orders for Boards	
Provide Assistance to Program Bureaus	
Follow-up with Attorney General	1.00
Administration	1.80

Professional	10.80*
Clerical	2.40
Total	13.20

* EPA Region V recommends that the professional staff for legal services be increased to 16.

Table A-14

State of Indiana Manpower Requirements

Planning and Evaluation

Activity	Manpower Need
Basin Plans and Metropolitan/Regional Plans	6.00
Program Plans and Grant Applications	1.50
EPA Liaison	
Program Monitoring and Evaluation	2.50
Land-Use Plans	1.00
Environmental Impact Assessments	2.00
Administration	2.60

Professional	15.60
Clerical	3.47
Total	19.07

Table A-15

State of Indiana Manpower Requirements

Public Affairs

Activity	Manpower Need
Public Outreach • Speeches • Media for Schools • Press Releases Central Complaint & Information Office	2.00

Professional	2.00
Clerical	0.40
Total	2.40

Table A-16

State of Indiana Manpower Requirements
Manpower Planning and Development

Activity	Manpower Need
In-House Training	
Manpower Planning State Local	1.50
Operator Certification for Sewage Industrial Waste	0.50

Professional	2.00
Clerical	0.40
Total	2.40

APPENDIX B

COSTS OF MANPOWER REQUIREMENTS
FOR
ENVIRONMENTAL PROTECTION

Table B-1

State of Indiana Manpower Requirements

Administration

Employee Title	Number	Salary	Total
Assistant Commissioner	1.0	$33,618	$ 33,618
Administrative Assistant	1.0	9,867	9,867
Bureau Directors:			
Water Pollution Control & Water Supply	1.0	26,884	26,884
Air Pollution Control	1.0	26,884	26,884
Engineering	1.0	26,884	26,884
Office Director:			
Special services	1.0	26,884	26,884
Secretary	5.0	7,449	37,245
Total	11.0		$188,266

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Table B-2

State of Indiana Manpower Requirements

Water Pollution Control: Surveys

Revenue Source	Activity	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	None Apply						
General Revenue	Stream Monitoring	3.29	Stream Biologist	2.0	II	$12,103	
			General Student Assistant	1.5	-	5,473	
	Water Quality Surveys	9.24	Stream Biologist	2.0	II	12,103	
			Sanitary Engineer	1.0	III	16,159	
			Public Health Sanitarian	2.5	I	10,153	
			Public Health Sanitarian	3.25	II	11,583	
			General Student Assistant	0.5	-	5,473	
	Fish Kills and Investigation of Pollution Incidents	2.13	Public Health Sanitarian	1.75	II	11,583	
			Public Health Sanitarian	0.5	I	10,153	
	Special Reports	0.40	Public Health Sanitarian	0.5	III		
	Technical Information	1.30	Stream Biologist	1.0	II	12,103	
			Public Health Sanitarian	0.5	III	12,610	
	Administration	3.20	Division Director	1.0	-	19,994	
			Stream Biologist	2.0	III	13,728	
	Clerical	4.33	Clerk-Steno	1.0	II	6,786	
			Clerk-Steno	3.0	I	6,227	
	Total	23.89		24.0			$261,009

Table B-3

State of Indiana Manpower Requirements

Water Pollution Control: Sewage

Revenue Source	Activity	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	Issue Permits	1.36	Sanitary Engineer	1.5	II	$13,156	$118,827
	Scheduled Inspections of Operations	3.62	Public Health Sanitarian	1.0	III	12,610	
			Sewage Works Supervisor	3.0	-	9,737	
	Review Plans	2.16	Sanitary Engineer	1.0	III	16,159	
			Sanitary Engineer	1.0	I	12,857	
	Administration	1.00	Sanitary Engineer	0.5	III	16,159	
			Division Director	0.5	-	19,994	
	Clerical	1.30	Clerk-Steno	1.5	II	6,786	
General Revenue	Construction Grants	2.24	Sanitary Engineer	1.0	III	16,159	$ 74,002
			Public Health Sanitarian	1.0	I	10,153	
	Inspection of Construction	0.66	Sanitary Engineer	0.5	II	13,156	
	Technical Information	0.93	Sanitary Engineer	1.0	I	12,857	
	Administration	1.20	Sanitary Engineer	0.5	III	16,159	
			Division Director	0.5	-	19,994	
	Clerk	1.62	Clerk-Steno	1.5	II	6,786	
	Total	16.09		16.00			$192,829

Table P-4

State of Indiana Manpower Requirements

Water Pollution Control: Industrial Waste

Revenue Source	Activity	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	Operating Permits	4.98	Sanitary Engineer	2.0	II	$13,156	$345,878
			Public Health Sanitarian	2.0	II	11,583	
			Public Health Sanitarian	1.0	I	10,153	
	Review of Construction Plans	0.85	Sanitary Engineer	1.0	III	16,159	
	Scheduled Inspections	7.66	Sanitary Engineer	1.5	III	16,159	
			Sanitary Engineer	1.5	II	13,156	
			Public Health Sanitarian	.5	IV	13,156	
			Public Health Sanitarian	1.0	III	12,610	
			Public Health Sanitarian	1.5	II	11,583	
			Public Health Sanitarian	2.0	I	10,153	
	Review of Reports	7.00	Sanitary Engineer	3.5	II	13,156	
			Public Health Sanitarian	3.5	II	11,583	
	Administration	4.00	Division Director	0.5	-	19.994	
			Sanitary Engineer	0.5	III	16,159	
			Public Health Sanitarian	2.5	IV	13,156	
	Clerical	5.06	Clerk-Steno	1.0	II	6,786	
			Clerk-Steno	4.0	I	6,227	
General Revenue	Tax Exemption Inspections	0.06	Sanitary Engineer	0.1	II	11,583	68,962
	Coal Mine Drainage & Oil Pollution	1.00	Sanitary Engineer	1.0		16,159	
	Technical Information	1.84	Sanitary Engineer	1.9	II	13,156	
	Administration	.60	Division Director	0.5	-	19,994	
	Clerical	1.15	Clerk-Steno	1.0		6,227	
	Total	34.20		34.00			$414,840

Table B-5

State of Indiana Manpower Requirements

Water Pollution Control: Water Supply

Revenue Source	Activity	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	Review of PWS Reports and Samples	6.88	Public Health Sanitarian	7.0	I	10,153	
	Administration	1,70	Division Director	0.5	-	19,994	$14,491
			Sanitary Engineer	0.5	III	16,159	
	Clerical	2.24	Clerk-Steno	0.5	II	6,786	$127,101
			Clerk-Steno	1.5	I	6,227	
	Review Construction Plans	0.97	Sanitary Engineer	1.0	III	$12,610	
General Revenue	Routine Inspection of Public Water Supply	6.37	Sanitary Engineer	2.5	I	12,857	
			Public Health Sanitarian	4.0	II	11,583	
	Technical Information and Trouble Shooting	2.55	Sanitary Engineer	2.5	II	13,156	$129,565
	Administration	1.70	Division Director	0.5	-	19,994	
			Sanitary Engineer	0.5	III	16,159	
	Clerical	2,24	Clerk-Steno	0.5	II	6,786	
			Clerk-Steno	1.5	I	6,227	
	Total	24.65		24.00			$256,666

Table B-6

State of Indiana Manpower Requirements

Laboratories: Water Pollution Control and Water Supply

Revenue Source	Activity	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	Laboratory Analysis	14.80	Chemist	2.0	IV	$13,728	$233,643
			Chemist	6.0	III	12,610	
			Chemist	4.0	II	12,129	
			Bacteriologist	3.0	II	11,089	
	Administration	1.80	Chemist	0.5	IV	13,728	
			Chemist	0.8	III	12,610	
			Division Director	0.5	-	19,994	
	Clerical	3.50	Clerk-Steno	3.5	I	6,227	
General Revenue	Laboratory Analysis	13.20	Chemist	1.2	III	12,610	$160,296
	Quality Control & Special Studies		Chemist	4.0	I	10,608	
			Bacteriologist	4.0	II	11,089	
	Lab. Certifications		Laboratory Technician (Summer)	4.0	II	6,487	
	Administration	1.00	Chemist	0.5	IV	13,728	
			Division Director	0.5	-	19,994	
	Clerical	2.50	Clerk-Steno	2.5	I	6,227	
	Total	36.80		37.00			$393,939

Table B-7

State of Indiana Manpower Requirements

Air Pollution: Surveillance

Revenue Source	Activity	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	Inspection for Permits	3.91	Sanitary Engineer	4.0	II	$13,156	$232,368
	Stack Tests	2.00	Sanitary Engineer	1.0	I	12,857	
			Public Health Sanitarian	1.0	II	11,583	
	Scheduled Inspections	7.04	Sanitary Engineer	1.0	III	16,159	
			Sanitary Engineer	1.0	II	13,156	
			Sanitary Engineer	1.0	I	12,857	
			Public Health Sanitarian	2.0	III	12,610	
			Public Health Sanitarian	2.0	I	10,153	
	Administration	2.50	Sanitary Engineer	1.9	III	16,159	
			Division Director	0.6	-	19,994	
	Clerical	3.59	Clerk-Steno	4.0	I	6,227	
General Revenue	Complaints and Field Patrol	2.08	Public Health Sanitarian	2.0	II	11,583	$132,993
	Air Quality Surveys	1.45	Sanitary Engineer	1.5	I	12,857	
	Stack Tests	4.00	Public Health Sanitarian	1.0	III	12,610	
			Public Health Sanitarian	1.0	II	11,583	
			Sanitary Engineer	2.0	II	13,756	
	Technical Information	0.49	Sanitary Engineer	0.5	I	12,857	
	Administration	1.50	Sanitary Engineer	0.1	III	16,159	
			Public Health Sanitarian	1.0	IV	13,156	
			Division Director	0.4	-	19,994	
	Clerical	2.00	Clerk-Steno	2.0	I	6,227	
	Total	30.76		31.00			$365,361

Table B-8

State of Indiana Manpower Requirements

Air Pollution: Technical Permits

Revenue Source	Activity	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	Operating Permits	5.21	Sanitary Engineer Sanitary Engineer	1.3 4.25	III II	$16,159 13,156	$126,013
	Plan and Specification Review	1.60	Sanitary Engineer Sanitary Engineer	0.3 1.25	III II	16,159 13,156	
	Clerical	1.61	Clerk-Steno	1.5	I	6,227	
	Administration	1.00	Sanitary Engineer Division Director	0.4 0.6	III -	16,159 19,994	
General Revenue	Emergency Episode Plan	0.62	Sanitary Engineer	0.5	III	16,159	$ 33,848
	Technical Information	0.47	Sanitary Engineer	0.5	II	13,156	
	Administration	0.60	Division Director Sanitary Engineer	0.4 0.5	- III	19,994 16,159	
	Clerical	0.50	Clerk-Steno	0.5	I	6,227	
	Total	11.61		12.00			$159,861

Table B-9
State of Indiana Manpower Requirements

Air Pollution: Laboratories

Revenue Source	Activity	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	Secondary Monitoring: Collection, Analysis & Calibration	3.16	Public Health Sanitarian	1.2	II	$11,583	$137,936
			Chemist	1.0	I	10,608	
			Lab Technician	0.8	III	9,308	
			Electronics Technician	1.2	I	9,308	
	CAMP Stations	0.39	Public Health Sanitarian	.4	I	10,153	
	Special Surveys	0.35	Public Health Sanitarian	.35	II	11,583	
	Special Lab Analyses	1.70	Lab Technician	0.7	III	9,308	
			Chemist	1.0	IV	13,728	
	Stack Testing	2.00	Public Health Sanitarian	.7	II	11,583	
			Public Health Santarian	1.3	I	10,153	
	Administration	1.40	Sanitary Engineer	0.2	III	16,159	
			Chemist	1.0	IV	13,728	
			Division Director	0.6	-	19,994	
	Clerical	2.17	Clerk-Steno	2.6	I	6,227	
General Revenue	Secondary Monitoring: Collection, Analysis & Calibration	1.84	Public Health Sanitarian	0.6	I	10,153	$ 86,665
			Lab Technician	1.5	III	9,308	
			Electronics Technician	0.8	I	9,308	
	CAMP Stations	0.23	Public Health Sanitarian	0.25	II	11,583	
	Special Surveys	0.21	Public Health Sanitarian	0.2	II	11,583	
	Special Lab Analyses	0.97	Chemist	1.0	IV	13,728	
	Stack Testing	1.00	Public Health Sanitarian	.3	II	11,583	
			Public Health Sanitarian	.7	I	10,153	
	Administration	1.00	Sanitary Engineer	.8	III	16,159	
			Division Director	0.4	-	19,994	
	Clerical	1.00	Clerk-Steno	1.4	I	6,227	
	Total	17.42		21.00			$224,601

Table B-10

State of Indiana Manpower Requirements

Air Pollution: Local Assistance

Revenue Source	Activity	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	None applies						
General Revenues	Visits to Locals	1.60	Sanitary Engineer	0.6	III	$16,159	$170,999
			Chemist	1.0	III	12,610	
	Review of Local Plan Review, Permit Programs	2.00	Sanitary Engineer	2.0	II	13,156	
	Review of Local Reports	0.26	Sanitary Engineer	0.2	III	16,159	
	Technical Assistance	2.00	Sanitary Engineer	1.0	II	13,156	
			Public Health Sanitarian	1.0	II	11,583	
	Administration	1.20	Sanitary Engineer	0.2	III	16,159	
			Division Director	1.0	---	19,994	
	Clerical	1.57	Clerk-Steno	1.0	I	6,227	
			Clerk-Steno	1.0	II	6,786	
	Total	8.63		9.0			$170,999

Table B-11

State of Indiana Manpower Requirements

Solid Waste Management

Revenue Source	Activity	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	Operating Permits	0.40	Sanitary Engineer	0.5	III	$16,159	$ 72,309
	Landfill Inspections	3.43	Sanitary Engineer	0.5	II	13,156	
			Public Health Sanitarian	1.0	IV	13,156	
			Public Health Sanitarian	1.0	II	11,583	
			Public Health Sanitarian	1.0	I	10,153	
	Review Construction Plans	0.23	Sanitary Engineer	0.3	III	16,159	
	Administration	0.80	Sanitary Engineer	0.2	III	16,159	
			Public Health Sanitarian	0.6	IV	13,156	
	Clerical	1.00	Clerk-Steno	1.0	II	6,786	
General Revenue	Inspection of Miscellaneous Solid Waste Sites	4.80	Sanitary Engineer	1.0	I	12,857	$131,655
			Public Health Sanitarian	0.8	III	12,610	
			Public Health Sanitarian	1.0	II	11,583	
			Public Health Sanitarian	2.0	I	10,153	
	Public Education	0.46	Sanitary Engineer	0.5	II	16,159	
	Technical Planning & Assistance	2.00	Sanitary Engineer	1.0	III	16,159	
			Public Health Sanitarian	1.0	III	12,610	
	Complaints	0.20	Public Health Sanitarian	0.2	III	12,610	
	Administration	1.40	Public Health Sanitarian	0.4	IV	13,156	
			Division Director	1.0	-	19,994	
	Clerical	2.03	Clerk-Steno	1.0	II	6,786	
			Clerk	1.0	II	5,408	
	Total	16.75		17.00			$203,964

Table 3-12

State of Indiana Manpower Requirements

Special Services

Revenue Source	Function	Manpower Needs	Employee Title	Number	Level	Salary	Total
Permit Program	None applies						
General Revenue	Standards Development and Technical Information Systems	16.80	Sanitary Engineer	6.0	III	$16,159	
			Sanitary Engineer	6.0	II	13.156	
			Systems Analyst	3.0	II	16,159	
			Programmer	2.0	I	10,608	
	Legal Services	8.40	Lawyer	1.0	II	19,000	
			Lawyer	5.0	I	15,132	
			Sanitary Engineer	2.5	III	16,159	
	Planning and Evaluation	15.60	Planner	5.0	-	13,156	
			Economist	3.0	-	15,132	
			Sanitary Engineer	5.5	III	16,159	
			Systems Analyst	2.0	I	13,156	
	Public Affairs	2.00	Public Information Specialist	2.0	-	14,000	
	Manpower Planning and Development	2.00	Manpower Specialist	2.0	-	14,000	
	Clerical	10.40	Clerk-Steno	6.0	II	6,786	
			Clerk-Steno	5.0	I	6,227	
	Total	55.20		56.0			$734,854

APPENDIX C

REVIEW OF ADEQUACY OF LEGISLATIVE AUTHORITY
FOR
ENVIRONMENTAL PROTECTION

ADEQUACY OF LEGISLATIVE AUTHORITY

In recent years, efforts to protect Indiana's environment have been based largely on statutes that deal separately with water[1], air[2], and solid wastes[3], and that grant assorted regulatory powers to three state agencies, the Stream Pollution Control Board (SPCB), the Air Pollution Control Board (APCB) and the State Board of Health (SBH). Passage of the Indiana Environmental Management Act (EMA)[4] in 1972 corrected deficiencies in the older statutory authorities and revealed, for the first time, a comprehensive perspective on the state's entire environmental protection effort. This Act ostensibly confers upon a new Environmental Management Board (EMB) sweeping regulatory powers with respect to air, water and solid wastes. At the same time, it preserves many pre-existing functions of the three older Boards and permits transfers of functions to and from the EMB. Setting aside for the moment problems of organization and allocation of powers among the four Boards, it will be useful to consider first the adequacy of the entire current array of powers at the State level, as most recently augmented by the EMA.

The Array of Powers

An adequate state program for environmental protection requires the exercise of certain basic powers, either by the legislature directly or by administrative agencies or local governments with the sanction of the legislature. They may be identified as follows:

1. Power to establish standards of environmental quality and to prohibit or restrict activities that may violate those standards.

2. Power to prescribe and to regulate the use of facilities for controlling or preventing pollution.

3. Power to secure detailed and comprehensive information concerning possible sources and effects of pollution, through surveys, monitors, inspections and reports.

4. Power to enforce statutes and regulations against violators, through administrative orders and judicial remedies.

In addition to the foregoing array of traditional regulatory powers, there are three whose significance has only lately been emphasized:

5. Power to override failures or refusals of local governments to exercise effective first-line responsibilities for environmental quality control.

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6. Power to secure joint or regional arrangements for the control of wastes from multiple points of origin, in accordance with rational comprehensive planning.

7. Power to coordinate or integrate strategies for all media in a comprehensive program of environmental protection.

Finally, and summarily, the growing involvement of the federal government in this field should be reflected at the State level in

8. Power to meet requirements of, and to secure benefits available under, federal law.

The statutes of Indiana exercise or delegate the first four of these powers decisively enough to support an effective, comprehensive program of environmental protection at the state level. The next three are not as fully realized as they should be. The last one has probably been exercised in sufficient degree for the present.

Standards and Prohibitions

The EMB is generally authorized to "evolve standards . . . to preserve, protect and enhance the quality of the environment", to adopt rules and regulations "defining standards", and to "[a]ct for the state in the adoption of standards pursuant to any federal law regarding environmental protection."[5] More specifically, the Stream Pollution Control Board (SPCB) may establish water quality criteria for use in identifying a "polluted condition" that is detrimental to public health, to wildlife, or to any lawful use of a waterway,[6] and no person may dispose of any matter in a way "that shall cause or contribute to a polluted condition of such waters . . . "[7] Similarly, the Air Pollution Control Board "shall create air quality basins . . . and promulgate standards for ambient air quality for each basin",[8] and no one may discharge contaminants into the outdoor atmosphere "so as to cause air pollution and create a public nuisance. . ."[9] It is prohibited to sell for public consumption any drinking water with bacteriological or chemical contents "deleterious to public health".[10]

These prohibitions can perhaps be faulted for vagueness, but the defect may be largely cured by a provision of the EMA which states that no person shall

> "[d]ischarge, emit, cause, allow or threaten to discharge, emit, cause or allow any contaminant or waste including any noxious odor, either alone or in combination with contaminants from other sources, into the environment in any form which causes or would cause pollution which violates or would vio-

> late regulations, standards, or discharge and/or emission requirements approved by the [Environmental Management] board . . ."[11]

Indiana law specifically restricts, or provides for specific restrictions, on a variety of activities potentially injurious to the environment. With respect to solid wastes, ambient standards cannot readily be defined, but open dumping is prohibited[12] and all other methods of refuse disposal must receive state approval prior to use.[13] State laws also prohibit littering, regulate the location and operation of junkyards, and hold owners of abandoned vehicles responsible for all public costs incidental to their disposal.[14] Recently enacted laws restrict the phosphate content of detergents[15] and empower the SPCB to regulate construction and operation of confined animal feedlots.[16] Regulations of the SPCB further require users of cyanides to prevent their drainage to any sewer system or watercourse, and owners of coal mines to minimize acid mine drainage.[17] The appropriate Board may prescribe standards for filling or sealing abandoned wells and holes in order to protect ground water against contamination, and standards and conditions for use of any fuel or vehicle constituting an air pollution hazard.[18] Open burning of refuse is prohibited.[19] The APCB may prescribe controls of emissions from motor vehicles[20] (consistent with Federal law). For the protection of water supplies, state law regulates construction of dams and reservoirs, limits withdrawals from restricted water-use areas, contemplates state acquisition of lands for water storage, prohibits construction of projects likely to lower water levels, regulates surface mining and prescribes reclamation practices.[21]

But no exhaustive enumeration of activities to be regulated is necessary under Indiana law. For the Boards are generally empowered to prescribe "[s]tandards or requirements for discharge or emission . . . of various contaminants of the air, water, or land" and to [s]pecify conditions under which, or geographical areas in which, the discharge of certain types of waste will not be permitted.[22] These provisions supplement the SPCB's power to restrict the polluting content of any wastes discharged to state waters,[23] which is backed by a prohibition against increasing the quantity or strength of any discharge without prior Board approval,[24] and the APCB's general power to adopt regulations for abating air pollution, pursuant to which it has prescribed emission standards and controls.[25] Procedures also are provided for ordering reduction or discontinuance of all discharges in any area where a public health emergency may arise because of excessive contamination of air, water or land, and the EMB may prescribe alert criteria and abatement standards for emergency episodes.[26] Thus, Indiana law authorizes the regulation of all waste disposal practices in the state, whatever the affected medium may be, and under all conditions.

Pollution Control Facilities

A key provision of the EMA prohibits all persons from constructing, installing, operating or modifying "any equipment or facility of any type . . . which may be designed to prevent pollution", except upon prior approval of the appropriate Board.[27] This unifies scattered provisions of law under which plans and specifications for sewage treatment plants,[28] emission control facilities,[29] and refuse disposal[30] must first be approved by appropriate Boards. The EMA authorizes development of a comprehensive permit system[31] for construction and operation of all such facilities, with expenses of administering the system, including issuance of permits and surveillance of the activities they regulate, to be recovered by charges assessed upon permitees.[32] The appropriate Board must approve plans and specifications before issuing construction permits, may condition the grant of any such permit on conditions it deems necessary to accomplish purposes of the Act, and may prescribe both operating and discharge standards. Permits may be issued for a maximum of four years and may be revoked or modified upon violation of permit terms, failure to disclose relevant facts in applying for a permit, "changes in conditions that require . . . reduction in the discharge of contaminants", or any other good cause. These provisions furnish powerful tools for regulating, on a continual basis, all waste disposal facilities and practices throughout the state.

A permit must also be obtained for construction or installation of facilities for providing, treating, disinfecting, storing or distributing any public water supply.[33] The applicant must submit any data deemed material by the issuing Board for review of proposed plans and specifications. These must be found satisfactory with respect to sanitary and mineral quality, adequacy of supply, location, design, construction, operation and maintenance, before a permit will be issued. All public water supplies must be continuously operated and maintained so as to preserve their safety and quality.

Indiana law further provides that all sewage treatment and water distribution plants, whether publicly or privately owned, must be under the supervision of a certified operator.[34] The EMB[35] has the tasks of classifying all plants according to the skills required to run them, of examining candidates, and of certifying the qualifications of individuals for operating positions. Certifications may be revoked for deceptive practices or incompetent performance. Thus Indiana has recognized the importance of entrusting the supervision of complex waste-water treatment and water purification works to operators of proven integrity and skill.

Data-Gathering

Programs for environmental protection cannot operate efficiently without a continuous supply of reliable intelligence concerning discharges and concentrations of wastes. Organizational and staffing difficulties may inhibit the supply of such intelligence, but the laws of Indiana cannot be faulted on this score.

The permit system (discussed above) furnished great leverage for acquiring data on discharges, both before and after treatment. In addition, the EMB may establish such reporting requirements as it deems necessary to carry out its own powers or those of the APCB or SPCB,[36] and all persons "discharging or proposing to discharge . . . contaminants which could affect environmental quality shall furnish such reasonable technical or monitoring program reports,"[37] and pay such filing fees,[38] as the Board may specify by regulation. These provisions supplement a long-standing requirement of the SBH that owners of sewage treatment works submit to it monthly operating reports.[39] They receive added force from the capability of the EMB to prescribe "[r]equirements and standards for equipment and procedures for monitoring contaminant discharges at their sources, for the collection of samples, and for the collection, reporting and retention of data resulting from such monitoring."[40]

The EMB also has the duty to "[c]onduct a program of continuing surveillance and inspection of refuse disposal sites, public water supplies, [and] actual or threatened sources of environmental pollution . . ."[41] To that end, its agents may enter private or public property at any reasonable time to inspect for possible violations.[42] "Requirements and procedures for the inspection of any equipment, facility, vehicle, vessel, or aircraft that may cause or contribute to pollution"[43] may be prescribed by the Board. These provisions complement in part, the powers of the APCB to "[m]ake investigations" and of the SBH to "conduct studies, investigations and research relating to air pollution and [c]ollect and disseminate information."[44]

Enforcement

The EMA sets forth the sequence of administrative investigation, complaint, hearing and issuance of final orders which the Boards are to follow in dealing with violations of the EMA or of any regulation or standard adopted thereunder. Parallel powers are vested in the SPCB and APCB under their own statutes.[45] In such proceedings, full rights to hearings upon administrative complaints and to judicial review of administrative orders are preserved to defendants under the state's Administrative Adjudication and Court Review Act.[46]

Final orders of a Board may include directions to cease and desist from violations or to take corrective actions within a specified time.[47] Any such order may also revoke a permit.[48] It is important to note that the Act also states that a Board may, by administrative order, "impose monetary penalties in accordance with this article . . ."[49] The Act does not, however, state what these penalties may be. As a result, the provision is of doubtful constitutionality. An amendment to the EMA fixing the amounts of fines which Boards may impose could activate this significant power and protect its exercise against constitutional challenge.[50]

The courts of Indiana are available both to enforce Board regulations or orders and to restrain or punish primary violations of the EMA. Civil penalties of up to $10,000 for the first day of any violation and $1,000 for each additional day may be recovered judicially, with an additional penalty of $500 per hour for violation of any emergency order. An intentional or willful violation is punishable by a criminal fine of not less than $1,000 and by imprisonment up to one year. Disobedience to the subpoena or lawful request of a board is separately punishable by fine or imprisonment.[51] In addition, Indiana law authorizes any agency to seek enforcement of its final orders by requesting courts of equity to issue mandatory or prohibitory injunctions.[52]

Violations of the Anti-Litter Law are punishable by a maximum penalty of $100 and thirty days' imprisonment,[53] and violations of the Junkyard Control Act carry fines of $100 to $500 and imprisonment up to 180 days.[54] For failure to obey a lawful order of the SBH to improve facilities for water purification or sewage treatment, an operator may be fined $500 for each day's delay in complying.[55]

The scope of actions that the Boards may take or compel through enforceable administrative orders is impressive. In general, such orders may require violators not merely to cease and desist, but to take prescribed corrective action within a specified time. The SBH may not only order additional purification of any water supply or treatment plant effluent but, in case of inefficient maintenance or operation, may order the violator to appoint a more competent operator.[56] Failure to maintain in good working order any mechanism or system prescribed by the APCB for controlling air pollution from a motor vehicle may lead to suspension or cancellation of the vehicle's registration.[57] The EMB, as noted above, may revoke any construction or operating permit for failure to comply with its conditions or for another good cause.[58]

Indiana law sets forth a clear strategy for enforcing orders of the SPCB against municipal polluters.[59] To meet the local cost-share for construction or improvement of sewage treatment facilities ordered by the Board, municipalities must, if necessary, issue either general obligation or revenue bonds. The question whether such bonds shall be issued, or compliance with the order otherwise achieved, is not to be submitted to the voters of the municipality for their approval, nor shall voters' objections operate to justify or excuse failure to comply. Any municipal officer who fails to discharge a duty imposed upon him by the Board's order may be punished by fine and imprisonment. These provisions of law put Indiana in a stronger position than most states to cope with foot-dragging by municipal polluters.

A recently enacted "private attorney general" bill affords standing to any person to sue any other person for protection of the state's environment from significant pollution, impairment or destruction.[60] If the concerned state agency, after receiving notice of such suit, either refuses to prosecute the alleged violator or fails to reach a final determination in the matter within 180 days, the complainant may prosecute his own suit in the courts. This citizens' remedy should heighten the resolve of the Boards to enforce the state's environmental laws, and will provide relief where, for one reason or another, no official enforcement action is taken.

Indiana law does not furnish the Boards with the capacity to bring lawsuits in the courts by their own general counsel. That power is reserved to the Attorney General's office, which appears on behalf of the Boards. Cooperation between the Boards and the A.G.'s office appears to be satisfactory at the present time.

State-Local Relations

Like most other states, Indiana recognizes that local governments can and should play important roles in protecting the environment. This is especially true in the field of air pollution control, where the sheer number of emitters makes it desirable to encourage local control programs with staffs and budgets of their own. Counties,[61] cities,[62] and towns[63] may enact and enforce ordinances for air pollution control, and nothing in the APCL shall be construed as preventing them from doing so, provided that their ordinances are consistent with and at least as strict as state law.[64] State policy declares "that local and air quality basin control programs are to be supported to the extent practicable as essential instruments for the securing and maintenance of appropriate levels of air quality."[65] To that end, the SBH furnishes assistance to local governments on air pollution matters and encourages them "to handle air pollution problems within their respective jurisdictions to the greatest extent possible."[66] The EMB has the duty to furnish similar encouragement and assistance.[67]

Such ordinances are typically of comprehensive scope. They establish, or empower local control boards to establish, air quality and emission standards. Under their provisions local boards may also review and prescribe plans and schedules for abatement action, inspect control equipment, monitor air quality, require submission or operating reports, issue abatement orders, grant permits and variances, and take enforcement actions against violators. State law fully applies, in the first instance, only in areas and with respect to problems not covered by local regulations.[68] Staff members of the SBH who also service the APCB informally oversee all local control programs to ensure that they are properly administered in conformity with state laws, regulations and guidelines. If a local agency "fails to enforce the local ordinance which affords protection to the public equal to that provided by state law", then the APCB "may take such appropriate action as may be necessary to enforce applicable provisions of state law."[69]

This is the only statutory provision that deals directly with the problem of inadequate performance at the local level. Unfortunately, its vague wording fails to indicate what action the APCB could take if, for example, a local agency repeatedly issued permits for inadequate emission control facilities. Nor does the EMA indicate what accommodations are to be reached between the EMB and local control agencies with respect to their mutally overlapping powers. This looseness in adjustment of local to state powers is a substantial defect in Indiana law - typical, however, of most state programs in the field of air pollution control. The defect could be corrected by legislation expressly requiring close supervision of local control programs by the APCB, or EMB, empowering the latter to assume total state control in any area where it finds widespread or repeated deficiencies in the performance of the responsible local agency.

With respect to water pollution control, water supply and solid wastes, local governments also have substantial duties and responsibilities. By authorization of state law, cities and towns locate, build, finance and operate their own sewer systems,[70] sewage treatment plants,[71] water works,[72] and refuse disposal facilities.[73] Municipal regulation of these matters is not, however, as comprehensive as it sometimes is with respect to air pollution control. By and large, it yields to the superior power of state Boards to approve all plans for proposed construction, to issue permits and abatement orders, and to enforce environmental and public health laws against violators.[74] Under these circumstances, local decisions will not often conflict with state policy.[75]

Sewage collection by a municipality may, however, give rise to such a conflict. Municipalities with sewage treatment plants may accept or require connection of waste sources to their sewer lines,[76] and may require pretreatment of tied-in commercial or industrial wastes[77] to safeguard the treatment plant. But what if a city or town permits too many new connections, increased discharges through existing connections, or inputs of toxic wastes to the sewer system,[78] with the result that its treatment plant becomes overloaded or fails to function properly? These are common problems in cities that decline to enforce their sewer ordinances or otherwise to regulate their own growth by environmentally sound standards. The EMA provides that no person shall "[i]ncrease the quantity or strength of any discharge of contaminants into the waters, or construct or install any sewer or sewage treatment facility or any new outlet for contaminants into the waters of this state without prior approval of the appropriate agency."[79] This language would cover new sewer lines and new discharges directly into state waters, but apparently fails to regulate the volume and concentration of wastes piped into existing sewer systems through new or old connections.[80] The loophole - which is common to many states - could be closed by fresh legislation expressly requiring state approval of new sewer connections and empowering the state to regulate tied-in sources through permits with effluent quotas, to revoke permits and order disconnection in appropriate cases, and, in default of municipal enforcement of an adequate local sewer ordinance, to bring enforcement actions directly against abusers of any sewer system.

Joint and Regional Arrangements

Even if all local governments were willing to discharge fully their separate responsibilities for environmental protection, the overall state program might suffer from excessive fragmentation of effort along local lines. Pollution is no respector of jurisdictional boundaries. Nor can it be controlled efficiently without cooperative efforts on an areawide scale.

Indiana law permits and encourages such cooperation. Under the Interlocal Cooperation Act, local governments may contract with one another to provide services and facilities "on a basis of mutual advantage."[81] They may establish joint organizational arrangements for such a purpose, with the approval of the appropriate state agency. Specifically, they may form regional districts for water supply or for collection, treatment, and disposal of sewage, upon approval of the SPCB,[82] and two or more local governments within an air quality basin may administer their control programs jointly in accordance with the Interlocal Cooperation Act.[83]

The question is whether these provisions for voluntary cooperation are adequate to Indiana's needs. Despite the fact that responsibility for air pollution control may be divided between two or more local governments in a single air quality control region,[84] no regional districts for this purpose have yet been formed under Indiana law. The only way of compelling their formation would be under the general provision for mandatory regionalization contained in the EMA. This states that if local governments, in the judgment of the EMB, have not "developed plans which provide for adequate water supply, air, water, or wastewater treatment or solid waste disposal facilities," the Board after hearing, "may order the affected local governmental units to proceed to form regional water, sewage, air or solid waste districts . . ."[85] But the provision comes into play only in the absence of adequate local "plans"; it is of no use to remedy deficiencies in the conduct or coordination of local programs.

This shortcoming could be remedied by enlarging the Board's authorization so as to permit it to order formation of an interlocal district whenever, in its judgment, efficiencies in management, regulation or enforcement would be achieved thereby. The authorization would cover not only air, but water and solid waste as well. Particularly with respect to solid wastes, increasing costs of disposal, lack of suitable space, objections to locating disposal facilities near residences, and lack of proper waste collection and disposal equipment are beginning to indicate a need for interlocal arrangements. These should be established, mandatorily if necessary, pursuant to a comprehensive state wide plan for storage, collection and disposal, overriding the traditional pattern of inadequate, fragmented local control.

Indiana law already supplies most of the power needed to regionalize wastewater management and disposal. If the EMB "finds it is in the interest of the health, safety, convenience and welfare of the residents of any area, any person may be ordered to connect to or receive and treat sewage from any other person . . ."[86] If the persons involved cannot voluntarily negotiate the terms for such connection and service, the Public Service Commission will decree the terms "and enter an order designating the person or persons who shall perform the work of establishing the connection, and such other conditions as are necessary . . ." Indiana is ahead of many other states by virtue of having such a law on its books.

Strategic Integration For All Media

Pollution controls should be planned in the light of all their consequential impacts on the environment. Disposal of sludge from treatment plants may present an air pollution or solid waste problem; buried refuse may infect water-bearing strata or leach into streams; low-flow augmentation may imperil water supplies. Such examples could easily be multiplied. More fundamentally, residential, industrial and public service developments should be planned and controlled so as to minimize their adverse environmental impacts. New roads may multiply air pollution; new subdivisions overload a sewage treatment plant; a dam or power plant destroy recreational values. Examples of this kind could be multiplied indefinitely. Indiana has made some recent strides toward grappling with these problems of overall environmental management, but, like most other states, still has a long way to go.

The purpose of the EMA is "to provide for evolving policies for comprehensive environmental development and control on a statewide basis" and "to unify, coordinate, and implement programs"[87] for beneficial use of the state's resources and protection of its environment.[88] To these ends, the EMB has the duties to evolve a comprehensive long-term program with standards and regulations for realizing it;[89] to establish priorities and coordinate activities of the SPCB, the APCB, and other "programs for which the board shall be the ultimate authority in environmental management matters";[90] and to approve rules of procedure, regulations and standards of the SPCB and APCB before they become effective.[91] These provisions confer on the EMB coordinative, supervisory and policy-making powers[92] which, in conjunction with its more specific powers to set standards and regulations, issue permits, and decree regional districts, should enable it to integrate the various separate programs for air and water pollution control, solid waste management and water supply throughout the state. Systematic procedures could be established for ensuring that abatement measures in one medium will not exacerbate problems in another, and that all such measures are consistent with long-range comprehensive plans.

The legal picture is less satisfactory, however, with respect to activities and developments that may threaten environmental damage in the first place. It is unsatisfactory to base control programs entirely upon ad hoc reactions to problems after they have arisen. Yet this is what often happens in Indiana, as elsewhere. For example, local zoning boards need not secure approval from any environmental state Board before sanctioning intensive industrial or residential development, which may jeopardize air and water resources. Nor need developers secure such approval before proceeding with projects whose wastes may overload municipal sewage treatment plants.[93] And municipalities, as already noted, may permit additional sewer connections without state approval.

Indirectly and tangentially, the state Boards could affect local land-use patterns by refusing to allow increased discharges to air or waterways,[94] or by refusing to grant, for certain impacted locations, the necessary prior approval of "any equipment or facility of any type which may cause or contribute to pollution."[95] Conceivably, the EMB could promulgate standards and regulations[96] requiring early submission to it of all plans for privately or publicly financed development which may have significant environmental impacts. But the EMB does not clearly have the power to veto such plans, and approvals will be difficult to withhold if the effect of doing so would be to halt developments that are already well under way.

What Indiana needs, then, is limited but systematic land-use control for environmental protection, administered by the state. The EMB would appear to be the logical choice of agency to do the job. A new law should spell out the necessity for submitting to the EMB, at an early stage, all plans for developments that may substantially affect the environment. The EMB would approve a development proposal if it found, inter alia,[97] that the developer had made adequate provision for meeting all applicable requirements for pollution control and for protection of natural resources and amenities. The burden would be on the developer to make the necessary showing, in public hearings at which anyone might testify. Disapproval by the EMB would effectively halt the development, with rights to judicial review preserved.

Indiana law already provides that each state agency must report to the EMB any plans or activities it has under way which may affect the environment,[98] and must include an environmental impact statement, after consulting with other concerned agencies,[99] in every report on proposed legislation and other major state actions significantly affecting environmental quality as defined by the EMB. Moreover, before any state or local agency may seek federal assistance for programs affecting the environment, it must give prior notice to the EMB, which may participate as a party to the process.[100] These provisions do not, however, ensure that activities of state and local governments will be consistent with environmental values.[101] Such activities, along with these originating in the private sector, should be brought under the proposed land-use control law.

State and Federal Law

At the present time,there do not appear to be any requirements of federal law that Indiana is unable to meet because of deficiencies in its own laws.* The SPCB and APCB have been designated respectively, as the state's agencies for all purposes of the Federal Water Pollution Control Act and the Federal Clean Air Act.[102] The State's Water Quality Standards, consisting of water quality criteria and plans for their implementation, were approved by EPA as meeting the requirements of Section 10 (c) of the FWPCA.[103] The State's Air Pollution Control Implementation Plan has been approved by EPA as conforming to requirements of Sec. 110 of the FCAA, with exceptions[104] that can be met or negotiated within the framework of existing law. Indiana has qualified for financial assistance under the Federal Solid Waste Disposal Act to plan and develop disposal programs, and has managed to furnish, for every new municipal sewage treatment plant, the 25% share of construction costs that is necessary to obtain the full 50 or 55% from EPA under Sec. 8(b) (7) and (f) of the Federal Act.

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* This chapter was written before the passage of the Federal Water Quality Act Amendments of 1972. Because the guidelines accompanying this new legislation were not written at the time of this study, we cannot comment on the extent to which Indiana's laws meet these or future requirements.

The Federal Guidelines for Water Quality Management Planning require development of basin-wide and metropolitan area-wide plans which take account, inter alia, of non-point sources, needs for regionalization, related land-use planning, jurisdictional conflicts, and total environmental impacts. Integration of land-use planning with water quality planning may be the most difficult of these desiderata for Indiana to meet, but the various provisions for the EMA for protecting environmental values in the face of economic development could prove sufficient for this purpose. The state's feedlot control law should eliminate a major non-point source of pollution.[105] Where plans should call for wastewater management on a regional basis, the state can compel industrial and inter-municipal connections.[106] Its Department of Natural Resources, which has jurisdiction over dams, reservoirs, flow augmentation, in-stream measures, interbasin transfers and water reuse, cooperates with the SPCB in basin-wide planning.

The federal requirements for equitable recovery of industrial waste treatment costs in municipal systems can clearly be met through the municipal power to collect sewer service charges from all users in proportion to the volume and strength of their respective wastes.[107] These requirements, as well as the ones set forth in the federal guidelines, are carried forward in the Federal Water Quality Act Amendments of 1972. The Amendments also mandate direct federal regulation of wastewater discharges in any state that did not itself have an advanced permit system for water pollution control. Indiana's EMA provides the basis for such a system.

Allocation of Functions at the State Level

We have already discussed, in Section 4.1.3 of this report, the problems inherent in the present allocation of functions at the state level. Briefly, we found that there is ambiguity in the Environmental Management Act regarding the division of powers and duties between the EMB, SPCB, and APCB. There are a number of questions where the Act is obscure. Hopefully, the Boards will reach understandings among themselves on how their various powers and functions will mesh. Regardless of understandings reached, however, these weaknesses in the Act mean that Board actions may be challenged in court on the ground that they lack statutory authorization.

Summary

It is useful at this point to recapitulate briefly the recommendations made in preceding pages regarding changes that should be made to strengthen Indiana's legislative authority in the area of environmental protection. Some caution should be exercised in interpreting these recommendations, however. In most cases, the recommendations refer to changes in the law which would be desirable to clarify or make explicit certain powers and duties which may already be implied in existing law. Thus, one should not interpret these recommendations as implying that the state has no authority in these areas. With this caveat in mind, the recommendations are the following:

- The Environmental Management Board should be expressly empowered to coordinate and evaluate local air pollution control programs and to assume total state control of them in the event of widespread or repeated deficiencies in the performance of the responsible local agency.

- The EMB should be empowered to order the formation of interlocal districts for air or water pollution control, water supply, or solid waste disposal whenever, in the Board's judgment, such a district would promote efficiencies in management, regulation or enforcement.

- A new law should require submission to the EMB, at an early stage, of all plans for significant residential, industrial, commercial or publicly sponsored developments that may substantially affect the environment. (Note that this applies only to significant developments that may substantially affect the environment; obviously, exceptions will occur for de minimis circumstances.) The EMB should be empowered to approve a proposed development if adequate provision has been made for meeting all applicable requirements of law pertaining to pollution control. Otherwise, EMB's veto would effectively halt the development, unless a reviewing court reversed or remanded the case to the Board.

- Approval of the EMB should be required for all significant new sewer connections. (Again, this applies only to significant cases; this would not apply to de minimis circumstances, e.g., individual sewer hook-ups.) Moreover, the Board should be empowered to regulate tied-in sources through permits with effluent quotas, to revoke permits and order disconnection of violating sources, and in default of municipal enforcement of an adequate local sewer ordinance, to bring enforcement actions directly against violators.

- The SPCB and APCB should be abolished, and their powers and duties be transferred to the EMB.

FOOTNOTES

1. Indiana Code (1971) 13-1-3-1 through 13-1-3-18 (Stream Pollution Control Law); 16-1-26-13 (water supply). All further citations are to the Indiana Code, 1971 Edition and supplements, unless otherwise indicated.

2. 13-1-1-1 through 13-1-1-10

3. 19-2-1-1 through 19-2-1-32

4. 13-7-1 through 13-7-18

5. 13-7-3-1(b), 13-7-5-1(c) and (e).

6. 13-1-3-7

7. 13-1-3-8. A somewhat redundant provision of Indiana law also prohibits discharge to State waters of any substance deleterious to public health, to the pursuit of any lawful occupation, or to water life. 16-1-26-1.

8. 13-1-1-5

9. 13-1-1-7

10. 16-1-26-4

11. 13-7-4-1(a): This sweeping prohibition could, however, be improved by inserting "or" after "pollution."

12. 19-2-1-31 and 13-7-4-1(d).

13. 19-2-1-3

14. 13-7-4-1(e) and 14-3-11; Indiana Highway Junkyard Control Act, Ch. 107, Acts of 1969. Indiana has no law, however, prohibiting or discouraging the sale of non-returnable containers.

15. 13-1-5.5, added by P.L. 174 of April 9, 1971.

16. 13-1-5.7, added by P.L. 175 of April 2, 1971.

17. SPC 2 and 3.

18. 13-7-7-5(d) and (c). 13-4-4 also provides for plugging of wells to protect State waters against seepage.

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19. 13-7-4-1(g) and APC 2 of the APCB.

20. 13-1-1-6(a)

21. 13-2-1-3, 13-2-2-3 and -5, 13-2-14-3 and -15-1, 13-4-4, 13-4-6.

22. 13-7-7-5(d), 13-7-5-1(j).

23. 13-1-3-7

24. 13-7-4-1(b)

25. 13-1-1-1 and 13-1-1-4(A) (3); APC 3 through 7

26. 13-7-12-1, 13-7-7-5(e). The Governor may declare a public emergency and issue such an order, upon request of the Secretary of the SBH and the Technical Secretary of the EMB.

27. 13-7-4-1(f).

28. 13-1-3-10 and 13-7-4-1(b) SPCB); Regulation HSE 14 of October 15, 1945 (SBH, with respect to sanitary features). The latter apparently exercises the SBH's traditional powers to regulate s sewage disposal in the interests of public health.

29. APC 1, which apparently rests upon the APCB's general power to adopt regulations for preventing and controlling air pollution. 13-1-1-4(a) (3) and 13-1-1-1.

30. 19-2-1-3. Powers of the SBH under the Refuse Disposal Act (19-2-1) were transferred to EMB by 13-7-6-1.

31. 13-7-10, 13-7-7-5(b).

32. 13-7-16-6.

33. 13-7-10-1 and 13-7-14. These provisions build upon an earlier requirement that plans and specifications for such facilities be approved by SBH. 16-1-26-3. All powers of SBH under the Sanitary Water Supply Act (16-1-26-1 through -13) were transferred to EMB by 13-7-6-1.

34. 13-1-6-1 through -10.

35. _Id_. Powers of the SBH under the Waste Water Treatment Control Act, 13-1-6-1 through -10 were transferred to EMB by 13-7-6-1.

36. 13-7-5-1(d)

37. 13-7-16-7. Prior to enactment of these specific provisions, reporting requirements of the APCB and SPCB rested, respectively, on the former's general power to adopt regulations for controlling air pollution (see citations at fn. 27, _supra_) and, somewhat more precariously, on the latter's powers to impose

effluent controls and to take other "appropriate steps to prevent . . . pollution . . . " 13-1-3-7.

38. 13-7-5-1(d)

39. Regulation HSE 15 of Oct. 15, 1945, apparently resting on the SBH's traditional powers to regulate sewage disposal.

40. 13-7-7-5(g).

41. 13-7-3-1(c).

42. 13-7-5-1(b). The SPCB and APCB have similar rights of entry under their own statutes, 13-1-3-6 and 13-1-1-4 (B) (9), with the exception, however, that the APCB may not enter into or upon "private residences" — a limitation not applicable to the EMB. 13-1-1-9(a) further prohibits any person from refusing entry at reasonable hours to APCB or SBH inspectors in the performance of their lawful duties.

43. 13-7-7-5(f).

44. 13-1-1-4(a)(1), 13-1-1-4(B)(2) and (3).

45. 13-1-3-9, 13-1-1-4(A). Assistance in detecting violators is furnished to the SPCB by law enforcement officers of the State's Department of Natural Resources, pursuant to the investigatory powers of this Department under 14-3-1-14(8).

46. 4-22-1-1 through 4-22-1-30, incorporated by reference into EMA 13-7-11-3(a) and 13-7-17-1.

47. 13-7-11-5.

48. Ibid.

49. 13-7-11-5(b)

50. The objection may be that the Act impermissibly delegates to an administrative agency the power to define crimes and prescribe punishments, and does not afford rights to trial by jury and other guarantees of criminal due process to defendants. There is, however, some judicial precedent in favor of allowing administrative agencies to assess civil penalties within limits prescribed by the legislature.

51. 13-7-13. These provisions render largely obsolete, but do not actually repeal, (1) the $25 to $100 fine and imprisonment up to 90 days specifically authorized for violations of the SPCL or of SPCB orders, 13-1-3-14; (2) the $100 per diem civil fine specifically authorized for violations of such orders, 13-1-3-15; (3) the $500 per diem fine for violation of the APCL or of APCB regulations or orders, 13-1-1-9(b); and (4) the per diem fine of $100 to $500 separately prescribed for open dumping, 19-2-1-31.

52. 4-22-1-27. Injunctive or mandatory relief against open dumping is also made expressly available to EMB by court action pursuant to 19-2-1-31.

53. 14-3-11-11

54. Ch. 107 Acts of 1967, as amended by Ch. 216, Acts of 1969, Sec. 9.

55. 16-1-26-13

56. 16-1-26-7 and -8.

57. 13-1-1-6(b).

58. 13-7-11-5(b), 13-7-10-5

59. 13-1-3-12 through -14.

60. 13-6-1-1 through 13-6-1-6 as amended by 13-7-11-1(b).

61. 13-1-1-10(c)

62. 18-4-21 (Ch. 389 of the Acts of 1969, with reference to cities of the first class).

63. 18-4-21-1

64. 13-1-1-10(a)

65. 13-1-1-1

66. 13-1-1-1, 13-1-1-4(B)(5) and (6)

67. 13-7-3-1(d).

68. "The regional, county and metropolitan air pollution control agencies will have power of investigation and enforcement similar to that of the State when the State Air Pollution Control Board chooses to delegate such authority. In cases involving violation and abatement, notices issued by the local agencies, procedures, powers of enforcement and punishments shall be the same as for cases prosecuted by the State, unless local ordinances require more rapid procedures and more severe penalties for noncompliance." Appendix 10-34, State of Indiana Implementation Plan (submitted pursuant to the Federal Clean Air Act.) And see IP 3-14 (investigation of complaints and initiation of abatement actions to be undertaken by the State in areas not covered by local regulations). However, in view of the independent statutory bases for local authority in this field, it seems clear that such authority cannot depend entirely upon discretionary delegation from the APCB.

See also IP App. 9-2 through 9-8, where it is stated that the APCB has primary responsibility for implementing state and federal standards of air quality, but that the responsibility will be borne mainly by local agencies in some areas and partly by local agencies in others.

69. 13-1-1-10(e).

70. 19-2-3-1, 18-1-4(48), 18-1-6(7), 18-3-1-50.

71. 19-2-5-2 and -3, 18-1-6(7). Moreover any city may enact ordinances requiring purification of watercourses and water supplies, protecting stream banks from encroachment or injury and prohibiting pollution of public waterways by solid or liquid refuse matter. 18-1-4-1.

72. 19-3-10-1, 19-3-15, 18-1-8-1.

73. 19-2-6-1(b), 18-1-4-1(13), 17-2-24(county dumps)

74. See the discussion supra at pp. . Regulation HSE 14 of the SBH requires that plans, specifications and engineering reports for construction of sewers as well as of sewage treatment works be submitted to SBH for approval of their sanitary features. HSE 10 empowers the SBH to order a city or town to construct a sewerage system if the lack of one results in unsanitary conditions.

75. Indiana's extraordinary legal provisions for avoiding municipal defiance of State orders to construct sewage treatment facilities are discussed above at pp.

76. 19-2-5-22. The SBH may also require such connections when, in its judgment, considerations of public health indicate the discontinuance of privies, cesspools, septic tanks or other primitive means of sewage disposal.

77. 19-2-14-5 (in cities of the first class).

78. Industries planning to install pretreatment facilities must submit plans and specifications to the SPCB for approval, but the Board lacks power to compel pretreatment at either new or existing sources of tied-in wastes.

79. 13-7-4-1(b).

80. It could perhaps be argued that the term "sewer" in the quoted passage includes connecting pipes to existing sewer mains, but the contention would be of doubtful validity. Nor does the language of 13-7-4-1(f), prohibiting any person from constructing, installing, operating or modifying any "equipment or facility" that may contribute to pollution without "prior approval" of the appropriate Board, appear to cover the problems identified in the text.

81. 18-5-1-1 through -7 and 18-5-1.5-1 through -5.

82. 19-3-1.1

83. 13-1-1-10(c)

84. The Indiana portion of the Metropolitan Chicago Interstate Air Quality Control Region involves control agencies of two counties and three municipalities, in addition to the APCB. An informal working agreement has been achieved among the six agencies and EPA through the Northwest Indiana Air Resources Management Program (see IP 1-10), but the multiplicity of jurisdictions still makes it difficult to avoid inefficiencies in the overall management of the control effort.

Indiana also participates in five Interstate AQC Regions. Under the Indiana-Illinois Air Pollution Control Compact (13-5-7), the two States pledge cooperation, but no action of the Compact Commission is binding unless approved by a majority of Commissioners from each State. The APCB has initiated procedures to establish joint control commissions with other neighboring States, for purposes of exchanging information on air quality, emissions, legal actions and emergency episodes (IP App. 9-1, 9-2). There exists, however, no interstate authority with substantial powers, nor is one likely to be established in the foreseeable future, given the well-known political and technical obstacles to this approach.

85. 13-7-5-2.

86. 13-7-5-1. The SBH, for narrower reasons of public health, may also require connections to be made to sewerage systems. Reg. HSE 10.

87. Ibid.

88. 13-7-1-1

89. 13-7-3-1(a) and (b)

90. 13-7-2-9, 13-7-2-6

91. 13-7-7-1(b)

92. Whether the law gives EMB the resources it will need to exercise these powers effectively is another matter, discussed infra on pp. 3-21 ff.

93. The SPCB is assured of being able to review project plans at an early stage only if the project is to be financed by federal mortgage money, or if the developer intends to furnish his own treatment plant for which certification is required from the Public Service Commission.

94. 13-7-4-1(b), 13-7-5-1(j).

95. 13-7-4-1(f)

96. Pursuant to its general power under 13-7-3-1(b) to "[e]volve standards and develop regulations, and adopt the same, to preserve, protect and enhance the quality of the environment, to assure the accomplishment of the comprehensive long-term program; and procure compliance with its standards and regulations."

97. There are, of course, other environmental values to be protected besides freedom from air, water or solid waste pollution and preservation of water supply. The proposal in the text summarizes parts of Maine's Site Location of Development Law, 38 Me. Rev. Stat. 481-488.

98. 13-7-16-4.

99. 13-1-10-3(c).

100. 13-7-16-5

101. The EMB will "review" the reports it receives, "coordinate" the programs of the various agencies, and "make recommendations" with respect to their plans and activities. 13-7-16-4. These provisions confer no substantial power on the EMB.

102. 13-1-4-2 and -3, 13-7-2-10. They enjoy this status also by designation of the Governor.

103. 40 C.F.R. 120.10. The standards include an antidegradation clause and a requirement for minimum secondary treatment at all point sources in accordance with federal regulations and guidelines.

104. 40 C.F.R. 252.770-52.783 (subpart P).

105. See fn. 15, supra.

106. See fn. 79, supra.

107. 19-2-5-19. This provision also authorizes flat charges for each sewer connection or charges based on water use or number and size of water outlets. However, the Federal Guidelines for Equitable Recovery of Industrial Waste Treatment Costs in Municipal Systems (EPA, Office of Water Programs, October 1971) strongly favor user charges based on volume, loading, and character of wastes. These Guidelines are based on 18 CFR 601, which conditions the federal construction grant on the municipality's having in effect an equitable system of cost recovery, whereby industries will pay that part of the local share of treatment costs which is attributable to their wastes.

ERRATA

page 25 The "Total Costs" and "Permit Program Costs" should read as follows:

Total Costs	Permit Program Costs
$ 188,266	$ -
261,523	-
192,829	118,827
404,573	345,878
256,666	114,492
393,939	233,643
368,176	232,368
159,861	126,013
224,601	137,936
112,827	-
202,462	72,309
768,987	-
3,534,710	1,381,466
1,127,572	440,688
155,527	60,785
$4,817,809	$1,882,939

page 26 Line 31 should read: "amount (43%) is for water programs..."

Line 35 should read: "programs. The remainder (22%) has been estimated for special services,"

Botton line should read: "Total program cost is $4,817,809"

page 27 Line 4 should read: "amount to $1,882,939"

Line 17 should read: "$1,602,694."

page 88 "Total" column should be $261,523

page 90 In "Salary" column, line 18 should be $13,156

"Total" column should be $345,878

58,695

$404,573

ERRATA, page 2

page 91 "Total" column should be $114,492
142,174
$256,666

page 93 "Total" column should be $232,368
135,808
$368,176

page 96 "Total" column should be $112,827

page 97 In "Salary" column, line 14 should be $13,156
"Total" column should be $ 72,309
130,153
$202,462

page 98 In "Manpower Needs" column, second line should be 10.8; last line should be 57.60

In "Number" column, third line should be 2.0; fourth line should be 6.0; last line should be 58.0

"Total" column should be $768,987

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